

CORNELL STUDY BULLETINS 3

Questions in Psychology

WHIPPLE

M

14430

ND

2352

ND

THE
CHARLES MYERS
LIBRARY

Spearman
Collection

NATIONAL INSTITUTE
OF
INDUSTRIAL
PSYCHOLOGY

ND

ND



22500572671

~~57-58~~
QAB

57- b/2

QAB

NATIONAL INSTITUTE OF
INDUSTRIAL PSYCHOLOGY
LIBRARY
NP
ALDWYCH HOUSE, W.C.2.

ANNOUNCEMENT

*Cornell Study Bulletins for
Teachers*

Edited by CHARLES DEGARMO
Professor of the Science and Art of Education
Cornell University

A. Bulletins now Ready

No. 1. Laboratory Exercises in Art Appreciation. Prof. De Garmo.

The chief purposes of this bulletin are as follows: First, to enable teachers to utilize profitably the art treasures of contemporary periodical literature, now largely unused, by founding a series of laboratory exercises upon them; and second, to present a method whereby a pupil may learn to see for himself, and not take all his art impressions at second hand. This is effected by attending to one art element at a time in a long series of laboratory comparisons in which there are broad contrasts. Incidentally, also, the teacher is guided in his study of art by the selection of a few standard works, and by a brief statement of general principles, designed to serve as a compass to guide him through the literature of the subject. A plan is given, also, for the conduct of an art club for study.

No. 2. Guide to High-School Observation. Assistant Prof. Whipple.

This guide to high-school visitation, inspired by Bagley's similar outline for observation in the elementary school, given in his "Classroom Management", contains far more than mere suggestions for cursory visits, where the object is to get a bird's eye view of the class or school as a whole. It is prepared primarily for university students of education, who are expected to observe a school or a class in the light of all their professional knowledge. There are, consequently, hundreds of questions (in 209 paragraphs) to guide the observations, which are classified as follows:

1. School program, curriculum, a tendance and general organizations.
2. Psychological principles in teaching.
3. Discipline and control; Moral training.
4. Hygienic conditions.
5. Classes in foreign languages; general directions and questions for Latin, Greek, German and French.

NATIONAL INSTITUTE OF
INDUSTRIAL PSYCHOLOGY
LIBRARY

NIP

6. Specific directions for Classes in Latin.
7. Greek.
8. German and French.
9. English: elocution, rhetoric, English composition, English literature.
10. History and Civics.
11. Mathematics.
12. Physics and Chemistry.
13. Biology: botany, zoology, and human physiology.
14. Physical and commercial geography.

In this bulletin many professors of Cornell University have contributed to the questions in their respective departments. Besides its primary purpose, this bulletin will serve as an excellent guide for the supervising principal in the high school by suggesting the vital points to look for, and will enable the individual teacher to check up and pass judgment upon his own work.

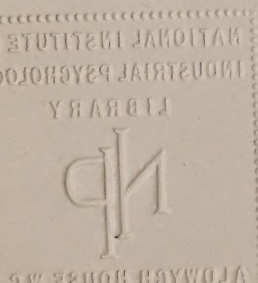
B. Bulletins contemplated or in preparation

1. Guides and study in professional subjects, such as the history, principles and psychology of education; school hygiene, etc.
2. Bulletins on the content and teaching of the various high school studies.

C. General Character of the Bulletins

As the name indicates, this is a series of bulletins to aid teachers in their study of education, and in their practice in teaching the various high school studies. For the most part, the bulletins will be prepared by professors of Cornell University, and will relate chiefly, though in some cases not exclusively, to the study and work of high school teachers.

Each bulletin will treat some one aspect of the subject under consideration, will constitute a whole in itself, and will consequently be in the form of a monograph. Thus, for example, a bulletin in English may confine itself to the teaching of a single work of Shakspeare, say Macbeth, or it may treat of a given aspect of composition, or of oral reading in high-school English. Another in science may discuss the best practical laboratory equipment, say in physics or chemistry; or the proper correlation of experiment, demonstration, lecture and recitation; or the conduct of experiments, the inductive approach, the function and limits of verification, etc. A bulletin in economics may furnish a guide to charitable and other institutions; one in civics and history may discuss and illustrate types of historical treatment, or show how to study the civics of cities, etc. Whatever the topic treated, it will as stated, be in complete monographic form, and will furnish a concrete guide to study and practice.



CORNELL STUDY BULLETINS
FOR
TEACHERS

*Editor : CHARLES DEGARMO,
Professor of the Science and Art of Education*

No. 3

QUESTIONS IN
GENERAL AND EDUCATIONAL
PSYCHOLOGY

BY

GUY MONTROSE WHIPPLE, Ph. D.,
Assistant Professor of the Science and Art of Education



SYRACUSE, N. Y.
C W. BARDEEN, PUBLISHER
1908

WILLIAM LEWIS
General Collections
M
14430

CAB

CONTENTS

List of References and Abbreviations	-	-	-	7
Introductory	-	-	-	9
<i>Section</i>				
A. The Nature, Scope, and Problems of Psychology: its Subdivisions or Phases and their Relation to Education	-	-	-	11
B. The Psychophysical Organism. Mind and Body. The General Structure and Function of the Central Nervous System	-	-	-	13
(a) Mind and Body	-	-	-	13
(b) The Structure of Neurones	-	-	-	14
(c) The Structure of the Nervous System	-	-	-	14
(d) The Function of Neurones	-	-	-	15
(e) The Function of the Nervous System	-	-	-	15
C. Inherited Forms of Action. Heredity. Capacities. Constitutional Differences. Temperament. Reflexes. Instincts	-	-	-	17
(a) Inheritance in General	-	-	-	17
(c) Capacities, Aptitudes and Temperament	-	-	-	18
(d) Reflexes	-	-	-	19
(e) Instincts	-	-	-	20
(1) Instinct in General	-	-	-	20
(2) Self-preservative Instincts	-	-	-	21
(3) Group, Social or Sex Instincts	-	-	-	22
(4) Adaptive Instincts; Play, Curiosity, Imitation	-	-	-	24
(5) Miscellaneous Instincts	-	-	-	27
D. Acquired Forms of Response. Intelligence. Educative Processes. Plasticity. Learning. Habit-forming	-	-	-	31
(a) Intelligence and Educability	-	-	-	31
(b) Plasticity and the Period of Infancy	-	-	-	32
(c) Processes of Learning	-	-	-	32
(d) Habit	-	-	-	34
E. The Sensory Mechanism and Sensation	-	-	-	36
(a) Sensation in General	-	-	-	36
(b) Visual Sensation	-	-	-	38
(c) Auditory Sensation	-	-	-	39
(d) Gustatory Sensation	-	-	-	40
(e) Olfactory Sensation	-	-	-	40
(f) Cutaneous Sensation	-	-	-	40
(g) Subcutaneous Sensation	-	-	-	41
(h) Organic and Static Sensation	-	-	-	41
F. The Motor Mechanism and Movement. Motor Training. The Forms of Action. Volition. Character	-	-	-	42

	(a) Motor Expression in General. Motor Training. Skill	42
	(b) The Forms of Action. Will. Reaction-time	46
G.	General Principles of Mental Elaboration and Organization. Retention, Recall and Memory Images. Attention and Interest. Association	49
	(a) Elaboration in General	49
	(b) Retention and Recall. Imagery. Ideational Types	50
	(c) Attention	51
	(d) Interest	54
	(e) Association	57
H.	Perception and Observation	59
	(a) Perception	59
	(b) Illusions and Hallucination	61
	(c) Observation	61
I.	Memory	63
	(a) The General Nature of Memory	63
	(b) Conditions of Goodness or Improvement of Memory	65
	(c) The Experimental Study of Memory	68
J.	Imagination	70
K.	Conception and Language	74
	(a) The Formation of Concepts	74
	(b) Language	77
L.	Judgment and Apperception. Reasoning. Induction and Deduction	80
	(a) Judgment	80
	(b) Apperception	81
	(c) Reasoning	83
	(d) The Inductive Method	85
	(e) The Deductive Method	86
M.	Affective Processes. Feeling and Emotion	88
	(a) Affective Experience in General. Affection. Feeling	88
	(b) Emotion	90
	(c) Sentiment, Mood and Temperament	92
	(d) Emotion and Education	93
N.	Formal Discipline or General Mental Training	95
O.	Abnormal and Anomalous Psychoses	99
	(a) Sleep and Dreams	99
	(b) Hypnosis	100
	(c) Insanity and Feeble-Mindedness	101
	(d) Miscellaneous Disturbances	101
P.	New York State Examinations	105
	Erratta	108

List of References and Abbreviations

- Ad.—J. Adams, *The Herbartian Psychology Applied to Education*, D. C. Heath, Boston, 1898.
- An.—J. Angell, *Psychology*, H. Holt & Co., New York, 1908.
- B. C.—W. Bagley, *Classroom Management; its Principles and Technique*, The Macmillan Co., New York, 1907.
- B. E.—W. Bagley, *The Educative Process*, The Macmillan Co., New York, 1907.
- D.—C. DeGarmo, *Interest and Education*, The Macmillan Co., New York, 1908.
- H. A.—G. S. Hall, *Aspects of Child Life and Education*, Ginn & Co., Boston, 1907.
- H. Y.—G. S. Hall, *Youth, its Education, Regimen, and Hygiene*, D. Appleton & Co., New York, 1907.
- J. P.—W. James, *Psychology (Briefer Course)*, H. Holt & Co., New York, 1900.
- J. T.—W. James, *Talks to Teachers on Psychology; and to Students on Some of Life's Ideals*, H. Holt & Co., New York, 1902.
- Ju—C. Judd, *Psychology; General Introduction*, Chas. Scribner's Sons, New York, 1907.
- K.—E. Kirkpatrick, *Fundamentals of Child Study*, The Macmillan Co., New York, 1907.
- O.—N. Oppenheim, *Mental Growth and Control*, The Macmillan Co., New York, 1907.
- Th. E.—E. Thorndike, *The Elements of Psychology*, A. G. Seiler, New York, 1905.
- Th. P.—E. Thorndike, *The Principles of Teaching Based on Psychology*, A. G. Seiler, New York, 1906.
- T. O.—E. Titchener, *An Outline of Psychology*, The Macmillan Co., New York, 1907.
- T. P.—E. Titchener, *A Primer of Psychology*, The Macmillan Co., New York, 1907.

QUESTIONS IN GENERAL AND EDUCATIONAL PSYCHOLOGY

Introductory

Purpose and use of the bulletin. The questions that comprise this bulletin are the outgrowth of an attempt on the part of the writer to supply his students with a means for checking up their progress in psychology, and for ensuring their intelligent assimilation of the material supplied by lectures, reading, and classroom discussions. It not infrequently happens that, with the best of intentions, an instructor is unable to accomplish this desideratum by means of his quizzes or by consultations with his students. Experience shows that a list of personal quiz-questions stimulates the student's interest, compels his active thought and attention, and affords a useful device for the self-imposed testing of his knowledge. Every properly framed question raises a definite problem, a definite issue, which, in most cases, either can, or can not, be as definitely settled.

The grouping of questions under classificatory headings is made for convenience, and without any intent to impose a particular system of psychology, or to imitate the order of presentation of any one of the texts cited for reference. Under each heading will be found page or chapter references to a list of well-known texts. These references are supplemented by numerous specific references following specific questions. The references in parenthesis following the questions, therefore, indicate either the place where the information necessary for the answer may be found, or, in the case of quoted questions, the source of the questions themselves. The writer is very glad, in this connection, to acknowledge the courtesy of Professors E. A. Kirkpatrick, E. L. Thorndike, and E. B.

Titchener and of the Macmillan Company in permitting the incorporation in this bulletin of occasional questions drawn from those of their books that are here included in the list of references.

It will be found that some questions are repeated in slightly varying forms under the same or different headings. This scarcely needs explanation or apology, for there is, in the nature of the case, a partial identity, or overlapping of the various concepts of psychology, in so far as the same general phenomena are regarded from different points of view. It is rather desirable, therefore, that questions should be so framed as to bring out these interrelations, even at the expense of seeming repetition.

The writer wishes to make clear that the questions cover a much wider range of instruction than he would think of prescribing for a course in general or educational psychology ; some of the questions, indeed, fall, strictly speaking, outside the field of psychology, and pertain rather to sociology, to hygiene, or to what is often known as "general method." The attempt has been made, however, to include questions upon all those phases of psychology that are commonly discussed in courses upon general and upon educational psychology. It is an easy matter for an instructor to select those questions upon which he wishes his class to be prepared. For the guidance of teachers who are studying by themselves, or of others who are interested primarily in the educational aspects of psychology, the writer has starred those questions which, in his opinion, less directly concern that field.

The questions drawn from the New York State examinations in psychology are embodied intact because of their obvious interest to students who are preparing to meet similar examinations.

A. The Nature, Scope, and Problems of Psychology : its Subdivisions or Phases and their Relation to Education

References

Ad—ii.	K—i., xviii.
An—i.	Th. E.—i., xxi.
J. P.—i.	Th. P.—i.
J. T.—i.	T. O.—i., xv.
Ju—i., xv.	T. P.—i., ii., xv.

1. Define psychology. What is its object? What its subject-matter? State the chief problems of psychology : compare with the aims and problems of teaching.

2. Define mind, consciousness, mental process.

* 3. Why is psychology ranked as a science? Why is it sometimes catalogued as a branch of philosophy?

4. What are the methods of investigation pursued in psychology?

5. What is introspection? Give four rules for the conduct of introspection.

* 6. What is a psychological experiment? How does it resemble, and how does it differ from, the physical or chemical experiment?

* 7. Give a general account of the subdivisions, phases, or fields of psychology, *i. e.*, of the province and scope of child, adult, normal, abnormal, descriptive, structural, dynamic, functional, biological, human, animal, comparative, genetic, individual, social, racial, physiological. experimental, and rational psychology, and of psycho-physics.

8. Describe in a general way the bearing of the science of psychology upon the art of teaching, and give an estimate of the comparative value for education of the various kinds of psychology just mentioned.

9. What is child-study? What is its object? What periods does it cover? What are the chief methods in use? What is its relation to the science of psychology? To the work of the teacher? Describe its origin. What reasons may be given for or against the participation of the teacher in the work of child-study?

10. Describe the chief features of Herbartian psychology. Give some account of Herbart's life and writings, and sketch his influence upon educational thought and practise.

11. What is usually meant by the 'new psychology'?

12. Why does modern psychology make such extensive use of physiology?

13. Why are such complicated instruments as are found in the psychological laboratory needed for the investigation of mental life?

B. The Psychophysical Organism. Mind and Body. The General Structure and Function of the Central Nervous System

References

An—ii.	Th. E.—ix., x., xi.
J. P.—vii., viii., ix.	T. O.—xv.
Ju—ii., iii.	T. P.—Appendix ii.
O—ii.	

(a) Mind and body

14. Describe the nature of the relation between mind and body, and give evidence to demonstrate the intimacy of the relation.

* 15. What difficulties appear in our endeavor to formulate or explain the nature of the relation between mind and body?

* 16. What is meant by dualism? By monism? Which position seems the more reasonable to you?

* 17. What is the theory of parallelism? Of interaction? Which position seems the more reasonable to you? State the chief arguments in favor of each theory.

* 18. What is the automaton theory?

19. Explain the phrase: "no psychosis without neurosis."

20. What is meant by saying that the brain is the substrate of mind? What portions of the nervous system presumably afford this substrate? What portions presumably act without conscious accompaniments?

21. What general principles for the hygiene of mental life can you derive from the intimacy of the relation of mind and body?

(b) The structure of neurones

* 22. What is the neurone theory? Explain briefly how the nervous system is regarded as an aggregation of neurones.

* 23. What is a neurone? Draw and describe typical neurones, showing cell-body, nucleus, dendrite, axone, and collaterals.

* 24. What other terms are used in place of axone?

* 25. Describe the nature of the terminals of typical axones.

* 26. In what ways do neurones differ from other bodily cells?

* 27. Give some account of the dimensions of neurones.

* 28. How many neurones are estimated to be found in the central nervous system?

* 29. What is the medullary sheath? The sheath of Schwann?

(c) The structure of the nervous system

30. Outline, with drawings, the evolution of the nervous system in typical animal forms, such as the ameba, hydra, jelly-fish, star-fish, worm, insect, fish, frog, and man, and indicate the general significance of the increase in complexity thus displayed.

* 31. Give an account, with explanatory drawings, of the embryological development of the human nervous system.

* 32. Name, describe, and locate the chief grosser structures of the adult human nervous system, such as spinal ganglia, spinal cord, oblongata, cerebrum, cerebellum, callosum, cortex, thalami, etc.

* 33. What is the white, what the gray, matter of the nervous system?

* 34. Explain the nature of the aggregation of neurones into tracts and systems. What is synopsis? What is a ganglion? What is a nerve?

* 35. Enumerate and describe the chief cell-groups in (a) the peri-

pheral, (b) the subcortical, and (c) the cortical division of the nervous system.

* 36. Make a diagrammatic sketch of a horizontal section of the spinal cord.

* 37. What is the sympathetic system?

(d) *The function of neurones*

* 38. What are the special functions of neurones? What do we mean by the 'irritability,' 'sensitivity,' and 'conductivity' of neurones? What is the probable nature of nervous discharge or nerve currents?

* 39. What is the rate of transmission of nervous excitation?

* 40. What is the probable function of the dendrites, of the cell-body, and of the axone, in the excitation or discharge of the nerve cell? By what method do neurones influence other bodily structures, such as muscles and glands?

* 41. What are the functions of the medullary sheath?

42. What is a stimulus?

(e) *The function of the nervous system*

43. What is the general function of the nervous system? Show how this general function can be expressed by the terms response, reaction, adjustment, adaptation.

44. Comment on the statement: "The nervous system is a machine."

45. What is the general function of the peripheral groups of neurones? Of the subcortical? Of the cortical?

46. What is the functional significance of the large superficial area of the cortex?

* 47. Give an account of Flechsig's genetic or medullation method of tracing the course of neural development, and of the resulting discov-

eries with regard to the nature of the cortical localization of function. Locate the several sensory, motor, and association areas, and give some account of the function of each area. What proportion of the cortex has direct connection with subcortical systems? What proportion is occupied by the association areas?

* 48. Name and describe three other methods of determining cortical localization of function.

* 49. Compare modern theories of cortical localization with older views, particularly with phrenology.

* 50. What is the particular function of the pyramidal tracts? Of the cerebellum?

51. Contrast cortical with subcortical action in as many respects as possible.

52. Name and explain constituent phases of response.

53. Explain the terms afferent, efferent, sensory, motor, connective, associative, elaborative, as applied to neurones.

54. Explain what is meant by the reflex-arc concept. Draw a diagram which shall illustrate it. To what extent is it applicable to nervous response? Indicate by diagrams how more complex types of neurone connections may be envisaged.

C. Inherited Forms of Action. Heredity. Capacities. Constitutional Differences. Temperament. Reflexes. Instincts

References

Ad—iv.	Ju—viii.
An—iii., xv., xvi.	K—iii., iv., vi.-xiii., xv.
B. C.—x., xiv.	O—v.
B. E.—i.	Th. E.—xii.
H. A.—84-141, 142-156, 205-240	Th. P.—iii., vi.
H. Y.—vi., ix.	T. O.—vi., x.
J. P.—viii., xxv.	T. P.—v., ix.
J. T.—vi., vii.	

(a) Inheritance in general

55. Give a general statement of the problems of heredity.
56. State and illustrate the laws of heredity.
57. Is degree of plasticity heritable? With what consequences to education?
58. What is meant by the inheritance of acquired characters? State the evidence for and against such inheritance. What consequences to education flow from its denial?
59. What is meant by 'social heredity'? Show its relation to education.
60. Discuss the accuracy of these statements: "Once a blockhead, always a blockhead." "What any one becomes by education depends upon what he is by nature." "Just because the factor of environment is all-influential, education, which simply represents the rational employment of this factor, is all-influential." "Intelligence can be aided and be trained, but no training or education can create it." "Psychical char-

acters are not manufactured by home and school and college; they are bred in the bone."

61. Which is the more important factor in making a good school, the mental caliber of the pupils or the excellence of the staff and equipment?

62. What inferences concerning the relative influence of heredity and environment can be drawn from a study of the Jukes family?

63. What is the meaning, importance, and biological or psychological foundation of the 'national eugenics' movement? (Cf. F. Galton, *Pop. Sci. Mo.*, lxxi., 1907, 165-178; K. Pearson, *ibid.*, 385-412.)

64. What tendencies to response, do we, in general, inherit?

65. Show the relation between inherited neural tendencies and mental constitution.

66. Discuss the relation of both native and acquired tendencies to the problem of education.

67. Show how the existence of bodily or nervous tendency is the key to the psychology of attention.

(b) *Capacities, aptitudes and temperament*

68. Give an account of the inheritance of capacities. Show the relation between capacity and education.

69. To what extent do individuals vary in this inheritance? For example, in 1000 persons (random sampling), how many would possess capacity of the genius variety? How many unusual capacity? How many average? How many poor? How many would be so poor as to rank as feeble-minded, imbeciles, or idiots?

70. Cite typical individual differences in capacity, aptitude, or constitutional tendency. (Th. P.—vi.)

71. Cite examples of the inheritance of unusual capacity in a given direction coupled with only mediocre general ability.

72. Which capacity is the most common and which appears earliest in life,—musical, literary, or business capacity?

73. Which of the following tendencies or instinctive traits are developed, which neglected, in the average school:—self-control, imitation, competition, coöperation, thoroughness, accuracy, independence, self-denial, selfishness, sympathy, leadership, modesty, courage, love of display, esthetic appreciation, truthfulness, reverence?

74. Discuss the relation of our graded school system to individual differences in mental capacity. Suggest modifications or devices for securing greater flexibility.

75. Explain the Batavia system: indicate fully its merits, its possible dangers, and the precautions which must be taken in its use. Does this system bring all children to the same level of capacity?

76. Define the term 'temperament.' How would you differentiate temperament and character?

* 77. Give an account of one or more classifications of temperament (Stewart, Wundt, Ribot *et al*). Give an account of the temperamental peculiarities of three persons well known to you and indicate their type according to these systems.

78. To what extent and in what way is a child's temperament revealed or reflected in his physical appearance? In his behavior? In his speech? Can mental disposition, as a rule, be safely inferred from physical traits?

79. Are temperamental tendencies (inherited individual differences in manner of response) adequately recognized in teaching? Justify your answer.

(c) *Reflexes*

80. What is a reflex? Name six special characteristics of reflex movement.

81. Distinguish between primary and secondary reflexes, and give examples of each.

82. What is automatic action, and how related to reflex movement?

83. Do any acquired movements become entirely reduced to the plane of the true reflex? Illustrate.

84. May reflexes be modified or inhibited? Illustrate.

* 85. Illustrate the statement: "Some of these 'reflex-arcs' are perfect at birth; in other cases, a little time is required for the sensory-motor connection to become quite definite."

* 86. Describe and explain the behavior of the decerebralized frog.

(d) *Instincts*

(1) *Instinct in general*

87. Define instinct. How does it differ from, and how resemble, reflex movement? How does it differ from psychomotor action? From impulsive action? From intelligent action in general?

88. What general rule or criterion can you give to differentiate instinctive and intelligent action in animals?

* 89. Does intelligence arise within the sphere of instinct, or is instinct a product of lapsed intelligence? What are the theories concerning the origin of instinct?

90. What is the relation of instinct to feeling or emotion?

91. Discuss the place of instinct in biological recapitulation and in the theory of culture epochs: how far, in general, is the parallelism between ontogeny and phylogeny to be carried?

92. In what ways does instinct in the lower animals differ from instinct in human beings?

* 93. Do any animals exhibit purely instinctive behavior unmodified by experience? Are such animals conscious?

94. Give five instances of the modification or inhibition of instinctive tendencies by intelligence or by environmental agencies.

95. Give an example of a fixt, an indefinite, a latent, a transitory, a suppressed, and a perverted instinct. Of a loss of instinct through disuse.

96. Why is instinct often called 'blind'? Give an example of an instinct which works harm instead of advantage to its possessor.

97. What is the educational significance of instinct? Explain clearly the part played by instinct in mental development, and how the existence of "native reactions" conditions the work of the teacher.

98. Ought all the instincts of childhood to be developed and encouraged, and why? If not, which ones are exceptions?

99. How, in general, are useful tendencies (instincts, dispositions, capacities) encouraged, and harmful ones discouraged?

100. Does the school ever waste its energies in seeking to develop instinctive responses which would mature naturally? If so, what?

101. Why is substitution superior to repression as a means for the elimination of undesirable tendencies? Illustrate.

102. Give a classification of instincts with illustrations of each group. Upon what is your classification based?

103. What instincts are especially prominent in infancy? In childhood? In adolescence?

(2) *Individualistic or self-preservative instincts*

104. Name the important self-preservative instincts and show the significance of the group.

105. Should you expect the child to be self-centered, or altruistic and why?

106. In what way does the fighting instinct make itself evident?

107. Ought actual fighting to be unconditionally forbidden? Justify your answer.

108. Can competition be related to the fighting instinct? How does competition further self-preservation?

109. Compare modern with more primitive forms of competition.
110. Discuss the use of competition in the schoolroom. For what purpose is it commonly used? With what results? State the advantages and disadvantages of its use. Cite cases of helpful and of harmful competition in the schoolroom.
111. What is the advantage of the method of group competition? Of the method of competition with one's own past record? Illustrate the manner in which these could be employed in the school.
112. Why did Rousseau say: "Let Emile never be led to compare himself to other children"?
113. How does instinctive fear further self-preservation? What fears seem to you to be instinctive? What acquired?
114. Give instances of peculiar and unreasonable fears in adults. Were they apparently instinctive or acquired?
115. "Show how caution may be developed without exciting fear." (K.)
116. In what way does fear become a motive or determinant of behavior in the school child? What are the advantages and disadvantages of using fear as a motive for the control of conduct?
117. How can the instinct of ownership be utilized in the school?
118. Cite instances in which acquisitiveness has been carried to an undesirable extreme.

(3) *Group, social, or sex instincts (species preservation)*

119. What is meant by the instincts of species preservation? Name and explain four such instincts. What period of mental development is especially influenced by them?

* 120. Show how the sex instinct is the fundamental one in the species-preservation group, and indicate the biological sanctions for the development of other social instincts from it.

121. Is self-preservation or is species-preservation the "first law of nature"?

122. Give illustrations, from your own observation if possible, of the conflict of the two instinctive tendencies just cited. Can a similar conflict be observed in animals?

123. Explain how the shift of instinctive tendencies and the conflict of instinctive promptings at adolescence furnishes the psychological explanation for the characteristic changes in motives, ideals, and conduct, as evinced in such a phenomenon as religious conversion.

124. Discuss the duty of the teacher with respect to the hygienic and moral problems connected with the development of the sex instinct. What sort of instruction should be given children with regard to sex? By whom, and at what age? (Cf. G. S. Hall, *Pedag. Seminary*, March, 1908, 82-91.)

125. What is meant by the instinct of 'gregariousness'?

126. Are the social tendencies adequately recognized and utilized in the average school? If not, suggest methods for such utilization.

127. Discuss the significance and value of the modern tendency to emphasize the school as a social organization. To what extent can or should the school reproduce the social conditions of life outside its walls? (Cf. J. Dewey, *The School and Society*, Chicago, 1900.)

128. Make a list of the things that you do largely from social pressure rather than from self-inclination.

129. What are the advantages and disadvantages, from the point of view of the child, in the 'one-child family'?

130. What are the advantages and disadvantages of 'chumming'?

131. What instinctive tendencies, social and otherwise, underlie the formation of 'gangs,' clubs, secret societies, and other self-devised organizations of school children? For what objects are such societies organized? What changes appear in their purposes at adolescence? What should be

the attitude of the teacher and of the parent toward such organizations? (Cf. M. Forbush, *The Boy Problem*, Philadelphia, 1902.)

132. Name three games that develop social qualities: three which do not.

133. Discuss the relative importance of coöperation and competition in school work. Describe methods for utilizing both simultaneously.

134. Discuss the changes which appear in social ideals and in plans for future occupation during adolescence?

135. Discuss love of approbation as an incentive for school work.

136. At what ages is appeal to public sentiment most effective?

137. What powerful incentives to conduct attain full potency only during the high-school period?

138. Illustrate lack of sympathy due to lack of experience.

139. How can the shy child be most successfully handled?

140. How can the 'bridge' from egoism to altruism be most easily effected?

(4) *Adaptive instincts. Play, curiosity, imitation*

141. What is the meaning of the phrase: 'adaptive instincts'?

142. Give a definition of play. Distinguish between play, work, drudgery, games, amusement, and recreation.

* 143. Outline the theory of play represented by Spencer, by Groos, by Hall and by Patrick. (Cf. *Amer. Journ. Psych.*, xiv. 1903, 368.) Which seems to you most reasonable?

144. Is any of your work really play for you? Describe.

145. What other instinctive tendencies appear in children's play beside the play instinct proper?

146. Name the plays and games you have enjoyed most at various ages and tell what features made them enjoyable.

147. In what phases of school work does play have its most obvious application? What rules can you suggest to guide the teacher in the utilization of the play instinct? (Cf. G. E. Johnson, *Education by Plays and Games*, Boston, 1907.)

148. What suggestions for the utilization of play in education can you draw from Hall's "The Story of a Sand-Pile"?

149. Discuss the educational value of public play-grounds, their value, and the obstacles to their introduction.

150. Give some account of the nature and value of summer 'play-schools.'

151. Describe any instances you have known in which teachers successfully or unsuccessfully attempted to regulate play during recess-periods.

152. Discuss the desirability of inventing and fostering athletic games for girls.

153. Which constitutes the more valuable form of exercise for school-children, and why:—spontaneous out-door play or formal calisthenic exercises? Systematic gymnasium drill or tennis and base-ball?

154. Where is the line to be drawn psychologically between amateurism and professionalism?

* 155. What are the principal motives which control the recreation of adults?

* 156. In what sense does the participation of adults in forms of art, *e. g.*, music or painting, constitute play?

157. Cite games or plays that embody the element of pursuit and capture. Why is this element so prominent?

158. Show how curiosity promotes adaptation.

159. What is the general role of curiosity in the educative process? In what phases of school work is it especially applicable? Do you agree

with this statement: "Inasmuch as the instinct of curiosity is mainly excited by the spectacular it is clear that its use in the school should be temperate" ?

160. Comment on the statement: "Out of this 'curiosity to know' science was born." Are advances in scientific knowledge more often due to investigations impelled by the desire for practical application or to investigations impelled by simple desire to know ?

161. What is the relation of curiosity to attention and to interest ?

162. Name things about which you were especially curious at different periods of childhood.

163. Give instances of knowledge gained in childhood through curiosity that has been serviceable subsequently.

164. Give instances of legitimate curiosity skilfully utilized by the teacher. Of legitimate curiosity neglected or misunderstood by teachers or parents. Of questions asked out of spurious curiosity. How should the last be treated by the teacher ?

165. Give instances of the utilization by teachers of lines of curiosity about topics lying outside of school subjects.

166. How, in general, should one answer the questions of children concerning matters too difficult for them to understand, *e. g.*, death, religious ceremonies, etc. ?

167. Cite any unusual lines of curiosity observed in individual children.

168. What is meant by imitation ?

169. Explain clearly the share and importance of imitation as a factor in mental development.

170. How does imitation in man differ from that in animals below man ?

171. Make out a list of the things that you have learned principally by imitation.

172. What differences appear between imitation in infancy and in later childhood ?

173. Explain, with illustrations, the forms of imitation known as persistent, reflex, idealistic, dramatic, spontaneous, voluntary.

174. Show the relation between 'suggestion' and imitation: what is meant by suggestibility ? Give examples of the force of suggestion and of its use in teaching.

175. What is meant by 'contrary suggestion,' and how should it be treated ?

176. Give illustrations of the influence exerted by the teacher upon his pupils through imitation.

177. Describe ideals you have imitated at different times. Show why ideals are especially important during adolescence, and indicate the nature of the changes that appear in them at that time.

(5) *Miscellaneous instincts*

178. What instincts may combine to produce the so-called 'collecting instinct' ?

179. Describe instances of collecting in animals and in children.

180. Name twenty kinds of collections. Which kinds are most prominent ?

181. What differences appear in the kinds of collections made by the two sexes ?

182. What are the chief methods of obtaining collections ?

183. What are the chief motives for collecting ?

184. What attributes render collections desirable in the eyes of children ?

185. How can the collecting instinct be used in school work ? Suggest means for its use in nature study, science, history, and geography.

Which are more valuable, and why: ready-made or pupil-made collections?

186. What tendencies unite to form the constructive instinct?

187. Explain the statement: "The destructive tendency is probably only a modified form of the constructive." (Th.)

188. Give instances of the constructive instinct in both animals and man, and compare the instances.

189. In what ways do we utilize this instinct in the schools? Is it adequately utilized in the average school? Suggest methods of improvement.

190. Is the modern city-boy inferior to his country cousin in constructive ability? If you think so, what is the reason and what the remedy? (Cf. D—vii.)

191. What is the nature and source of the migratory instinct?

192. Do you know of any instances in which the migratory instinct seems to have been the cause of truancy? At what age? (Cf. L. Kline, *Pe'ag. Seminary*, v., Jan., 1898, 381-420.)

193. How can this desire for roaming and travel be utilized and directed to the advantage of the school?

194. What is the probable source of the esthetic instinct?

195. In what ways is this instinct exhibited by children, and how can it be developed in the school?

196. Describe changes in your standards of beauty (form, color combinations, music, etc.) from childhood to maturity.

197. What general principles should govern the decoration of the schoolroom? (S. Burrage and H. Bailey, *School Sanitation and Decoration*, New York, 1899.)

198. What is meant by the 'expressive instinct'? What forms of expression are instinctive? Is writing? Is drawing? Is speech? Is gesture?

199. In what ways other than language do you have impulses to express yourself?

200. Can you express your feelings better by writing or by talking?

201. Are children more impressed or affected by stories they themselves read or by stories that are read to them? Does the child's ability to read alter conditions here?

202. Give evidence from your own experience showing an increase of interest in language in early adolescence.

203. Do you know of instances of the invention of a language by children? Describe the circumstances.

204. Are you inclined to believe that the *penchant* of adolescents for slang is due to an instinctive desire for a richer means of expression?

205. Suggest a method for determining approximately the vocabulary of pupils of a given grade. (Cf. E. Kirkpatrick, *Pop. Sci.* lxx., Feb., Mo., 1907, 157-164, also G. M. Whipple, *Psych. Rev.* xv., March, 1908, 94-105.)

206. Indicate approximately the rate of acquisition of a vocabulary by the average child.

207. Which is the larger and why:—your speaking or your reading vocabulary? By what means could the discrepancy be reduced?

208. Is the fullness of a pupil's vocabulary and his command of language in general a good index of his intellectual ability or grade of mental development? Justify your answer.

209. What instinctive tendencies are used in modern methods of teaching reading? In what way, psychologically, are modern methods superior to the old-fashioned ones? (Cf. E. B. Huey, *The Psychology and Pedagogy of Reading*, New York, 1908.)

210. What are the chief problems arising in the teaching of writing?

211. What general principles appear in children's drawings? What first prompts the child to draw? What objects does he first attempt to

picture? How can the use of drawing as a mode of expression be best conserved in its teaching? What advantages has a drawing over a verbal description as a means of expression?

212. Illustrate the wise use of drawing as a means of expression in connection with reading, history, physiology, arithmetic, algebra and Latin. In which case is it hardest to find a use for it? Why?

213. Give evidence for and against the assertion that children possess moral and religious instincts.

214. Do these quotations contain good psychology: "Men at their birth are by nature radically good." "A sinful nature has given each of our children seven times seven devils." (Th.)

215. State briefly what can be done by parents and teachers to develop morality in childhood? In adolescence? What is the application of the psychology of habit to this problem?

216. Describe the 'School City,' the 'Citizen and Tribune,' and other plans for pupil self-government. Upon what psychological principles are they based? In what grades may they be expected to work? Under what conditions, and with what degree of success?

217. To what extent and in what way can the 'honor system' be applied in elementary grades? In the high school? In college?

218. Ought the 'deportment' of a child to be used in figuring his general class standing? As a basis for promotion? Give reasons.

219. Is there any warrant for the practise of punishing an entire class for the offenses of one member or a few members? If so, what warrant, and under what conditions?

220. Have you ever seen religious instruction successfully attempted in the schools? Ought such an attempt to be made?

221. What comment is to be made on the frequent criticism of the public schools for their alleged failure to give adequate moral, as well as physical and mental, training?

D. Acquired Forms of Response, Intelligence, Educative Processes, Plasticity, Learning, Habit-forming

References

An—iii.	Ju—viii., xv.
B. C.—i. ii, iii., v., vi.	J. T.—iv., viii.
B. E.—i., ii., vii.	K—i., v., xiv.
J. P.—x.	Th. E.—xiii.

(a) Intelligence and educability

* 222. Under what conditions does consciousness appear in the evolution or in the development of the psychophysical organism? What is the seeming function of consciousness?

223. How do you define intelligence? How does intelligent response differ from non-intelligent response, *i. e.*, what are the characteristic marks of intelligent action?

224. Intelligence is sometimes formulated as “profiting by experience;” is this an adequate formulation? Do animals below man profit by experience? To what extent? What factors limit their intelligence? What does ‘profiting by experience’ mean neurologically?

225. Explain the psychological and educational implications of the phrase, “the moth and the flame,” and of the saying: “the burned child shuns the fire.”

226. What is education, reduced to its lowest terms?

227. Contrast the educability of man with that of animals: what differences appear? Prepare a list of ten animals ranked in order of their intelligence and capacity for training.

228. Discuss the significance and share of language in the educative process.

229. Give illustrations showing the marked influence exerted by environment upon mental development, *e. g.*, the sudden appearance of new traits in children when introduced to a new environment.

(b) *Plasticity and the period of infancy*

230. What is meant by the 'period of infancy'? Give two reasons for its educational significance.

* 231. Compare the length of the period of infancy and the ultimate 'intelligence' of four animals.

* 232. Show the relation between the period of infancy and the parental instinct in man and in the lower animals.

233. Is the period of infancy longer or shorter in highly civilized than in primitive peoples? Why? With what important consequences?

234. Explain the statement: "In one sense it is not so much the *capacity* for education as the *necessity* of education that differentiates man from the lower animals." (B. E.—i.)

235. Can education develop in a nation not only habits suited to present conditions, but also adaptability to meet new conditions as they appear? Illustrate.

236. What is meant by 'organic plasticity'? How do you envisage it?

237. In what sense is all education an education of the central nervous system?

(c) *Processes of learning*

238. Make out a list of activities (a) that are fully inherited and entirely unlearned, (b) that are trained or developed by experience, yet based upon instinctive tendencies or promptings, (c) that must be learned in entirety by each individual. In which list does learning to walk belong?

* 239. What is meant by the statement that some habits are based on instinct whereas others depend upon the principle of 'diffusion' or 'ex-

cess discharge' ? Give illustrations. (Cf. J. M. Baldwin, *Mental Development: Methods and Processes*, 1900, 179ff. New York.)

* 240. What factors guide the development of motor control out of the stage of diffusion ?

241. Describe in detail the progress of a young child in developing motor control, *e. g.*, in learning to use a spoon or catch a ball. (Cf. D. Major, *First Steps in Mental Growth*, N. Y., 1906, ch. ii.)

242. Name the three most characteristic methods or modes of learning. Are these largely reducible to a single mode ? Which ?

243. Which mode of learning is characteristic of animals ? Have you ever seen one animal learn to do something by imitation of another animal ? What sort of activity was it ? Did you ever see an animal learn by instruction ? Describe.

244. Make a list of ten things you have learned, and indicate what mode or modes you followed in each case. What things can you name that you have learned by one mode only ?

245. What mode of learning is indicated by the saying: "experience is the best teacher" ? Why is experience also the "dearest teacher" ?

246. What types of learning succeed best by imitation ? Can you suggest forms of school work in which imitation might profitably be utilized more than it is ordinarily ?

247. Just why is instruction alone often found inadequate for successful learning ? Illustrate.

248. Is there any difference in the serviceability or prominence of the different modes of learning at different periods of school life ?

249. What is the significance of the 'plateaus' in curves of learning, *e. g.*, in Bryan and Harter's curve of 'receiving' the telegraph language ? Have you observed similar plateaus in your own experience ? In what work ? (Cf. *Psych. Rev.*, iv. 1897, 27-53, and vi., 1899, 345-375. Also E. Swift, *Amer. Jour. Psych.*, xiv, 1903, 201-252, and *Psych. Bulletin* i., 1904, 295-305.)

250. What should be the nature of the lesson-work for a class that is presumably on a plateau? Why?

251. What is the meaning of James' remark that we learn to skate during the summer and to swim during the winter?

(d) *Habit*

252. Define habit. Show clearly how habit is the expression of a general tendency toward psychophysical organization, toward condensation, simplification, and reduction of conscious control.

253. In what sense can habit be said to be 'degenerated' response?

254. What is the psychical basis of habit?

255. What is the relation of plasticity and habit? Draw a diagram to illustrate this relation at different ages.

256. What, in general, is the effect of habit-forming upon subsequent learning, *i. e.*, how does the fact that the mature man is a "bundle of habits" affect his ability to learn new things? Could you, for instance, learn to translate German better at fifteen or at thirty? Why?

257. In what sense can we speak of 'intellectual habits,' or 'habits of thought'? Can you see why memory can be said to be an instance of habit?

258. Can habits of thought cultivated by specific training have a general applicability? Is there such a thing as 'generalized habit'? (Cf. Section N.)

* 259. Does pleasantness determine the organization of a habit or does pleasantness result from such organization? (Cf. C. Judd, *Psychology*, N. Y., 1907, 224 ff.)

260. What is the fundamental law of habit-building? Explain why emphasis must be placed upon *attentive* repetition and upon persistence. Give instances of waste in habit-forming due to lack of attention to the process. Of waste due to lack of persistence and thoroughness.

261. Cite instances of failure in habit-forming due to "that insidious Rip-Van-Winkleism: 'This time will not count.'"

262. Give James' maxims for the acquisition of desirable habits.

263. What rules can you add for breaking undesirable habits?

264. Practise for one month upon the formation of a habit, preferably upon one that can be treated to quantitative measurement. Report in detail, indicating the factors which condition progress. Formulate therefrom additional rules for habit-forming.

265. Try similarly the breaking of an established habit.

266. What are the practical advantages of habit? What its disadvantages?

267. Why does conscious participation in habitual activities sometimes interfere with their execution? Illustrate.

268. Discuss the educational significance of habit. Comment on the statement: "The whole course of mental development could truly enough be described as made up of this process of acquiring habits."

269. Discuss the place of habit in classroom management. Prepare a list, as extensive as possible, of the factors in school management which call for habit-forming. What are the advantages, and what the disadvantages, of the reduction of "routine factors" to habit?

270. Show carefully the application of the psychology of habit to the teaching of spelling and arithmetic.

271. Give instances of failure on the part of teachers to make proper use of habit in school work. What are the reasons for such failures?

272. Discuss the ethical significance of habit. Show in some detail the duty of the teacher in establishing habits of moral significance. Show how the establishment of good habits constitutes an essential foundation for moral conduct and training. Prepare a list of such 'moral habits' that should be established in the schoolroom.

273. In general which are more easily formed and why: 'good' habits or 'bad' habits?

E. The Sensory Mechanism and Sensation

References

An—v.	Th. E.—ii.
B. E.—iv.	T. O.—ii. to iv.
J. P.—ii. to vi.	T. P.—iii.
Ju—v.	

(a) Sensation in general

274. Define sensation. Discuss the points of similarity and difference in the following definitions: (a) "Sensation is the simplest phase of cognition." (b) "Sensations are the first things in the way of consciousness." (c) "Sensations are elemental conscious processes which are connected with bodily processes in definite bodily organs." (d) "A sensation is a hypothetical conscious element concomitant with the excitation of a single cortical cell." (e) "Sensations are direct feelings of qualities of things or of the conditions of the body."

275. What is the primary function of sensation?

276. Do we experience simple sensory qualities as such?

277. Does sensation belong to the inherited, or to the acquired phases of response, or to both?

278. Explain more fully the statement: "Nothing is in the intellect which had not been in sensation."

* 279. Enumerate the various modes of sensing, and state the nature of the stimulus and of the physiological processes concerned in each mode or form, visual, auditory, etc.

* 280. Give a general account of the evolution of the various sense-organs. In what order did they appear? What was their common source? In what order do the senses mature in the infant?

281. Which are chemical, and which mechanical senses?

282. We often speak of the "five senses." What number would be more adequate?

* 283. What is the total number of elementary sensations? Can you show adequate biological sanction for the existence of such a wealth of qualities? Why, for example, should we be able to discriminate 11,000 tones?

284. Distinguish carefully the physical, physiological, and psychological processes concerned in sensation.

* 285. What is sensitivity? What is the 'limen' or 'threshold' of sensitivity? What is the 'range' of sensitivity?

* 286. What are the 'attributes' of sensation? What is the 'quality' of a sensation?

287. What is Weber's law? Show its application, *e. g.*, in painting, or in the relation between cost and efficiency of artificial light. What extensions of the law have been suggested by analogy?

288. The deaf are commonly pictured as rather morose and pessimistic, the blind as happy and optimistic: would you rather lose your sight or your hearing? Would the loss of subcutaneous and organic sensation, if it were possible, be more serious than the loss of sight or hearing? Why?

289. Show the pedagogic importance of the hygienic care of the sense-organs?

290. Discuss the problem of sense training. On what grounds is it advocated? How is it proposed to accomplish it? Is it worth undertaking for the normal child? For the subnormal? What criticism can be made of extremist views of sense training?

291. Can you cite cases in which poor sensory discrimination has been remedied by training?

(b) *Visual sensation*

* 292. Trace the evolution of the invertebrate eye, *e. g.*, through such forms as the jelly-fish, *Patelia*, *Murex*, *Nautilus* and cuttlefish.

* 293. Describe the structure of the human eye, including the sclerotic and choroid coats, the optic nerve, retina, rods and cones, macula lutea and fovea, the lens, ciliary muscle, iris, eyelids, eye-muscles, vitreous and aqueous humors. Explain the function of these structures, and compare the eye to the photographic camera.

* 294. Explain the nature and the origin of the blind spot. Why is it unnoticed in ordinary vision?

295. Explain the mechanism of accommodation. What is the near point and the far point?

296. Explain with diagrams, myopia, hyperopia, and astigmatism; state the form of lens needed to correct each defect.

297. Why is myopia so dangerous? How is it related to school work?

298. What are the causes, symptoms, and effects of eye-strain, and what the possible remedies for it?

299. Enumerate six important rules for the care and preservation of eyesight.

300. Explain clearly how visual acuity may be tested (for schoolroom purposes).

301. What percentage of school children have defective vision?

* 302. What sensation qualities do we obtain from the eye? How may they be classified? How many qualities can we discriminate?

* 303. Why is the spectrum an inadequate representation of color qualities?

304. Draw and explain the color pyramid. What colors would be seen (a) if you peeled the figure like an onion, (b) if you halved it longitudinally, (c) if you cut cross-sections parallel to the plane of saturated colors?

* 305. Describe and explain the phenomena of indirect color vision.

306. Explain color blindness and color weakness (anomalous color vision). Show the relation of color blindness to indirect color vision. What is its commonest form? How can red-green blindness be detected? How treated? Show the educational importance of conducting systematic tests of color vision.

307. What are complementary colors?

* 308. Define or explain: color mixture, color contrast, adaptation, positive and negative after-images. (Cf. E. B. Titchener, *Experimental Psychology*, N. Y., 1901, Vol. i., Pt. i., Ch. i.)

309. Give three laws of color mixture.

310. Give five laws of color contrast.

311. Explain briefly the visual theories of Helmholtz and of Hering.

(c) *Auditory sensation*

312. Describe the external, middle, and internal ear. What is the nature and function of the pinna, tragus, meatus, tympanum, ossicles, Eustachian tube, cochlea, basilar membrane, organ of Corti?

* 313. How soon after birth is hearing established?

314. What sensory qualities are afforded by the ear?

315. What is the fineness of pitch discrimination? What is the upper and the lower limit of tonal hearing, and the total number of discriminable tonal qualities?

* 316. What is timbre or clang-color? To what is it due?

* 317. Define or explain the terms 'clang,' 'chord,' 'beats,' 'difference tones,' 'summation tones.'

318. How may deficient tonal discrimination be detected? Can such tonal deafness be removed by training? Show the bearing of such tests upon the teaching of music in the school.

319. How is acuity of hearing tested? How may middle ear be differentiated from internal ear deafness?

320. What percentage of school children have defective hearing? How do such defects influence the behavior and the class standing of pupils? What changes in seating should be made as a result of acuity tests?

321. Where is the seat of partial deafness most often located? Is such deafness oftener inherited or acquired?

322. What is the most frequent cause of middle ear deafness?

(d) *Gustatory sensation*

* 323. Describe the taste buds and their distribution.

324. How many tastes are afforded by the tongue? What sensations other than gustatory does the tongue yield?

325. What is the general function of taste?

326. Explain the nature of 'flavor' and suggest a method of demonstration.

(e) *Olfactory sensation*

* 327. Describe the sense-organ for smell.

328. How many sensations are afforded by the nose? What classification of odors has been suggested? What sensations other than olfactory does the nose yield?

* 329. What is smell exhaustion? Smell compensation? Smell mixture? Smell contrast?

330. Is there any evidence that taste and smell have degenerated since primitive man?

331. Is there any probability that our sense of smell could be markedly increased by training? Would this be worth while if possible? Justify your answer.

* 332. What was Galton's "arithmetic of smell"? (Cf. *Psych. Rev.*, i., 1894, 61.)

(f) *Cutaneous sensation*

333. Enumerate the cutaneous sensations. Describe the anatomical basis of each.

* 334. What is the objection to the use of the words 'feeling' and 'touch' to describe cutaneous sensations?

335. Explain the statement: "The skin is in reality a delicate mosaic of sensitive and insensitive spots."

336. What other functions does the skin subserve aside from the sensory functions under consideration?

* 337. What is the reason for excluding from the list of cutaneous sensations such experiences as hardness, softness, wetness, dryness, smoothness, sharpness, weight, etc.?

338. What is meant by cutaneous 'sensory circles'? Explain the use of the esthesiometer. Criticize the use of this instrument as a means of measuring the degree of fatigue of schoolchildren.

(g) *Subcutaneous sensation*

339. What are the subcutaneous sensations? What other names are given to this group? Of what do these sensations in general inform us?

* 340. What objection is there to the term 'muscular sensation'?

341. Describe the sensation set up in the muscles. In the tendons. In the joints. Which of these is most vivid and important?

342. Explain clearly the statement: "The sensations of strain continue thruout life to play the role of centralizing or unifying agencies." How do these sensations come to represent use or function? (B. E.—71 ff.)

* 343. What sensations inform us of the position of our limbs?

(h) *Organic and static sensation*

344. What is the static sense?

* 345. What sensory experiences are due to the excitation of the semi-circular canals? What is the structure of these canals?

346. Name the more important organic sensations.

347. What sensory qualities do we receive from the alimentary canal? From the lungs and blood-vessels?

F. The Motor Mechanism and Movement. Motor Training. The Forms of Action. Volition. Character

References

An—xx., xxii.	K—v., xiii.
D—v., vii.	O—xii.
H. A.—300-322	Th. E.—xviii., xix.
H. Y.—ii. to vi.	Th. P.—xiii., xiv.
J. P.—xxiii., xxvi.	T. O.—x. xiv.
J. T.—iii., iv., v., xv.	T. P.—ix., xiii.
Ju.—vii., xiii.	

(NOTE: Questions dealing with the function of the nervous system, reflexes, and instincts, especially with the play, constructive, and expressive instincts, may be reviewed in connection with this Section.)

(a) *Motor expression in general. Motor training. Skill*

348. Show the necessity and importance of movement, and its relation to consciousness in general.

349. What is to be understood by 'motor expression'? (Cf. on this and other questions in this Section, M. O'Shea, *Dynamic Factors in Education*, New York, 1907, Part I.)

350. Explain the statements: "All consciousness is motor," and "No impression without expression." Discuss their educational significance. How literally should these statements be interpreted?

351. Show that 'meaning' is bound up with 'use.'

352. Cite children's definitions that illustrate the importance to them of a functional attitude, *i. e.*, an attitude of use.

* 353. Illustrate: "There is always a motor organ linked with every sensory organ."

* 354. Can the basis of emotion be found in motor expression? Explain.

355. "Motor activity does not always manifest itself in the form of movement." How else? Give an instance of expression by sitting still?

* 356. What is inhibition?

* 357. Show how motor expression is illustrated in (a) gesture, (b) the planchette, (c) muscle-reading, (d) Ferrier's experiment, (e) hypnosis, (f) the 'impulse-to-jump' psychosis.

358. Enumerate eight reasons or purposes for which motor expression is desired in the school.

359. Give a list of fifteen typical terms of motor expression in the school and state which of the purposes you have mentioned are fulfilled by each of these forms.

360. Show how motor expression clarifies the pupil's thought.

361. Show how education may be defined as "the organization of acquired habits of conduct and tendencies to behavior."

362. Do you believe that "our own movements are perhaps our greatest educators"? Is school work arranged on this basis?

363. Contrast modern with old-time schools with respect to the utilization of movement and activity. (Cf. C. Johnson, *Old-time Schools and School-Books*, N. Y., 1904.)

364. What distinction is suggested by the contrasting of 'clear' ideas with 'vivid' ideas? (D-v.)

365. Which phase of mental life does the school tend to stress,—the sensory-intellectual or the intellectual-motor? Rightly?

366. Why is 'motor-work' assumed to be especially fitted for the training of incorrigible and defective children? Do you agree with the assertion that "the pupils of our best institutions for negroes, Indians, and juvenile delinquents . . . receive the best training in the land"? (H. Y.—iii.)

367. Why is motor-work advocated as a preventive for truancy?

368. Give statistics of withdrawal from school, and comment on the causes of such withdrawals. (Cf. S. Brooks, *Educ. Rev.*, xxvi., Nov. 1903, 362; C. Woodward, *Rept. U. S. Comsnr. Educ.* 1899-1900, 1364-74; or E. Thorndike, *Bulletin Bureau Educ.*, No. 4, 1907.)

369. Does the desire for activity seem keener at any one period of school life than at others?

370. Contrast the typical country boy and the typical city boy with respect to opportunity for the development of skill, and for general motor and industrial training. Discuss the necessity, the value, and the means of restoring motor training to urban children.

371. Discuss manual training and Sloyd. State the history of these movements, their 'philosophy,' their points of similarity and difference, their psychological merits and defects. (Contrast J. T.—v. and H. Y.—iv. in this connection.)

372. Describe the work of William Morris, and of the arts and crafts movement. Compare with manual training and Sloyd with regard to its psychological basis and educational value.

373. What, in general, is the educational value of laboratory work?

374. Discuss the value of gymnastics as a means of developing motor control.

375. Name plays and games that have special value in developing motor control.

376. "Clearness, vividness, accuracy, completeness, convenience, economy of time, permanent effect, and intrinsic value are the qualities desirable in any means of expression." (Th. P.) Which of these qualities are exemplified in drawings, in schematic diagrams, in models, in speech, in gestures, in writing?

377. At what age should 'motor specialties' such as piano-playing, drawing, dancing, writing, etc., be begun?

378. What is meant by the phrase "from fundamental to accessory?"

as applied to the development of motor skill? (Cf. F. Burk, *Pedagogical Seminary*, vi., Oct. 1898, 5-64, also O'Shea, *Op. Cit.*, ch. x.)

379. Is this statement correct: "School and kindergarten often lay a disproportionate strain on the tiny muscles that wag the tongue, move the pen, and do fine work requiring accuracy"? (H. Y.—ii.) What evil results are said to follow such strain?

380. Explain the two factors 'form' and 'execution' as elements in the development of motor skill. Give rules for the teaching of each. (Th. P.—xiv.)

381. Can you cite instances of good form coupled with poor execution, or of poor form with good execution?

382. Why and how should pupils be taught self-criticism of their motor productions?

383. Write a short sentence 20 times with your left (or unpractised) hand, (a) with your eyes closed, (b) with your eyes open. Which series shows the more improvement? Why?

384. Consider the performance of a child, otherwise very capable, who is never able to do manual work, *e. g.*, sewing, whittling, top-spinning in a neat, skillful and finished manner; is such incapacity usually due to general handicap of inheritance, to uncorrected sensory defects, or to faulty motor training?

385. Could any person, granted indefinitely long practice, learn to perform the juggler's feat of keeping four balls in the air at once?

386. If engaged in sewing, which activity could be most easily carried on at the same time,—walking, reading or talking? Why?

387. Is there any advantage in training children to draw, write, throw a ball, etc. equally well with either hand? What sanction is there for the usual practice of developing dexterity to a high degree in one hand only?

388. Is there any relation, in theory or in practice, between degree of

dextrality and intelligence? (Cf. J. Baldwin, *Mental Development, Methods and Processes*, ch. iv.)

389. Will the attainment of dexterity in playing scales upon the piano assist one in attaining skill in playing the banjo? In embroidery? In typewriting? In tennis? In drawing? Can you formulate any general principle on the basis of your answer?

(b) *The forms of action. Will. Reaction-time*

390. Define or explain, with illustrations: spontaneous, mechanical, reflex, instinctive and automatic movement; impulsive, ideomotor, psychomotor, sensorimotor, volitional, and selective action.

391. Prepare a table or diagram to illustrate the developmental relations of these various forms of behavior. (T. P.)

392. What is the fundamental distinction between voluntary and involuntary movement? Which of the forms above mentioned are voluntary, which involuntary? Which are conscious, and which unconscious?

* 393. Outline a classification of movements according to (a) their antecedent conditions, (b) their composition, (c) their location, and (d) their function or use.

* 394. "Movement is a more general term than action." Explain.

* 395. What do you comprise under the term 'behavior'?

396. Give an account of the aimless, random, or spontaneous movements executed by an infant during a short period of time, say fifteen minutes.

397. Give an account of the transition of the child from random to controlled movements. What is the law of 'excess discharge'? Cf. Nos. 239 and 240.

398. Both piano-playing and the beat of the heart are sometimes called automatic action. To which is the term more correctly applied? Which could be more correctly called mechanical?

399. Is impulsive action, technically understood, the kind of action referred to in such statements as: "I spoke impulsively"?

400. Show how the impulse often 'degenerates' to ideomotor (conscious reflex) action, and afterward, still further to reflex movement.

401. Explain the statement: "Volition has no sooner established a habit than it turns about and employs the habit as a tool for the construction of larger, more extensive habits." (An.—xx.)

402. How can you differentiate secondary from primary ideomotor action? (T. P.—xiii.)

403. Define volition and show carefully its general relation to the principle of motor expression.

* 404. Show the controlling influence of attention in volition.

* 405. Show that either sensational or ideational processes may set off voluntary movement.

* 406. What is meant by the 'motor cue'? By 'resident' and by 'remote' imagery in the guidance of movement? Could a person walk if afferent excitations from the legs were cut off?

* 407. What gives rise to the feeling of effort in voluntary action?

* 408. Is there an 'innervation sense'? Describe an experiment to illustrate your answer.

* 409. Explain and illustrate: "The whole motive, the sum of conscious conditions [of action] is made up of an *inducement* and an *incentive* present in consciousness together." (T. P.—ix.) What is the inducement and the incentive in instinctive action?

410. Examine several cases of volitional action and state the motive (inducement and incentive) which led you to action in each case.

411. Why do advertisers spend money in printing such apparently unconvincing commands and assertions as "Drink P. B. ale," or "Get the habit; trade with Day and Hoyt," or "Diamond tires outwear all others."

* 412. What is the issue between determinism and free-will? State arguments in support of both positions.

413. Under what conditions do selective and volitional action, deliberation, and decision appear? How frequently, relatively, is the occurrence of such action? Do animals deliberate?

* 414. Describe attitudes of decision and indecision.

* 415. Describe the five types of decision mentioned by James.

416. Give illustrations of the 'precipitate' or 'explosive' will and of the 'obstructed' will. What extremes appear in insanity or feeble-mindedness?

417. It has been argued that higher education tends to produce indecision. If true, what explanation might be offered? (Cf. S. Patten, *Heredity and Social Progress*, N. Y., 1903.)

418. Give illustrations of the 'balky' will in children. Show the merits of diversion versus compulsion in its treatment.

419. What constitutes a 'healthy' will?

* 420. Explain the statement: "A deal of twaddle is sometimes indulged in as to the training of the will." (An.—xxii.)

421. What practical maxims can you adduce for the development of so-called "will-power"?

422. Cite four common errors in the training of moral action. Cf. Nos. 215-221.

* 423. Describe the reaction experiment. In what field did it first attract attention? Explain simple, sensorial, motor, discrimination, choice (selective and volitional), automatic, and association reactions.

* 424. Give sample times for the typical forms of reaction experiment.

425. Is reaction-time a feasible measure of intellectual alertness, or general mental ability? (Cf. G. M. Whipple, *Amer. Jour. Psych.*, xv., 1904, 489-498.)

G. General Principles of Mental Elaboration and Organization.
Retention, Recall and Memory Images. Attention and
Interest. Association.

References

Ad—vi., x.	J. T.—ix. to xii.
An—iv., viii., xxi.	Ju—vii., ix.
B. C.—ix. to xii.	O—iii., iv.
B. E.—vi., xi., xii.	Th. E.—vii., xiii., xvi., xx.
D—entire	Th. P.—v., vii., viii.
H. A.—84—141.	T. O.—vi., viii., xi.
J. P.—xiii., xvi., xviii.	T. P.—v. vii.

(Note: Questions upon curiosity may be reviewed in connection with attention and interest.)

(a) Elaboration in general

426. What is meant by mental elaboration?

427. Contrast the consciousness of the newly-born child with that of the adult.

428. Explain the genesis of 'meaning' in our mental life.

429. What factors, in general, condition the organization of mental life?

430. Explain how and why every consciousness is based upon complex brain activity.

* 431. Explain the statement: "Mental life is not like a series of solos, . . . but is like the performance of an orchestra in which many sounds fuse into a total."

432. Show that mental elaboration implies retention and recall, attention, and association.

(b) *Retention and recall. Imagery. Ideational types*

433. State the law of retention. The law of recall.

434. Show the relation of retention and recall to one another, and to habit, association, and memory.

* 435. Do we ever have retention without recall? May such retention still be of value? How?

436. What is a 'centrally excited sensation'? A memory-image?

* 437. What is the general advantage of memory-imagery over peripheral sensation?

438. Give illustrations of the contribution of central elements (past experience) to the interpretation of peripherally excited sensations (immediately given experience).

439. What is meant by 'ideational types'? Give three synonyms.

440. What is your own type? Give reasons for your answer. (Cf. E. B. Titchener, *Experimental Psychology*, i., 195-200, or T. P.—vii., question 2.)

* 441. Describe Galton's study of visualization. (Cf. F. Galton, *Inquiries into Human Faculty*, 1883.)

* 442. Can you see how types of idea depend ultimately upon types of attention?

* 443. Is there any tendency toward a change of type with maturity?

444. Explain the nature and significance of verbal types. What advantages would there be in having a memory which was predominately verbal? What disadvantages?

445. What pedagogical suggestions arise from a consideration of ideational types?

446. What is a number-form? How may such forms be developed in school children? What justification is there for attempting this?

(c) *Attention*

447. Define attention.

448. Show how attention is related biologically to the needs of the organism.

* 449. "Perhaps the most striking characteristic of attention is its selective nature." (An.—iv.) Explain and illustrate.

* 450. Explain the analytic and the synthetic features of attention. In what manner is attention an organizing activity? (An.—iv.)

451. "Why is it that the hidden drawing in a 'puzzle picture' is so difficult to see at first and so difficult *not* to see when you have once found it"? (T. P.—v.)

452. Define and illustrate passive, active, and secondary passive attention.

* 453. Explain: "The existence of nervous tendency is the key to the three forms of attention." (T. P.—v.)

* 454. Other terms used to indicate forms of attention are:—voluntary, non-voluntary, involuntary, native, instinctive, acquired, immediate, mediate, sensorial, intellectual. Explain the meaning of these designations.

* 455. What is 'expectant attention'? Show how the conjurer makes use of it.

456. What is meant by 'scattered' or 'dispersed' attention? By inattention? By 'absent-mindedness'? Can you show that 'absent-mindedness' is often 'present-mindedness'?

* 457. Show how constitutional tendencies determine passive attention. Write out all the words you can think of descriptive of mental constitution.

458. What subjective or personal factors determine passive attention? What objective factors?

459. Discuss the application of the psychology of passive attention to the problems of classroom teaching.

460. Is attention more naturally given to new or to familiar situations?

461. Make a list of the things that catch passive attention.

* 462. What gives rise to the sense of effort in active attention?

* 463. "Active attention and will may be looked upon as synonymous terms." Explain.

464. Does active attention preclude the operation of instinct?

465. Describe the muscular activity present in passive attention. In active attention. What is the purpose of the activity in each case?

466. Explain and illustrate: "One means to secure attention is to secure its physical attitude."

467. Show how the forms of attention reveal the distinction between work and play.

468. Is an intense desire for activity sufficient to bring its possessor to the accomplishment of work?

469. Explain the statement: "Work is, biologically, the central feature of education."

470. Give a psychological definition of 'incentive.' Show the relation of incentive to active attention.

471. What is the difference between 'positive' and 'negative' incentives? Which is, in general, the more effective, and why?

472. Prepare a list of ten incentives, both positive and negative, and indicate the advantages and disadvantages of each as a motive in school work. (B. C.)

473. State in the order of their strength the incentives that motivate your own work.

474. Discuss the relation of attention and fatigue.

475. Describe the nature and genesis of secondary passive attention, and discuss its value.

476. Why is secondary passive attention more efficient and economical than active attention?

477. Should the ability to exert active attention be definitely trained in the school? If so, why, and how?

478. Can you study better if you have a special place and time for your work? Why?

479. What is the objection to repeating a question when conducting recitations or quizzes?

* 480. What circulatory changes accompany attention?

481. State three important differences between the focal and the marginal aspects of consciousness.

482. What is meant by the degree of attention?

483. In what form of attention is the highest degree obtained and why?

484. Can degree of attention be measured by the degree of effort put forth? If not, how can it be measured?

485. Reconcile the following statements: "We can attend to the same topic for a considerable length of time." "There is no such thing as voluntary attention sustained for more than a few seconds at a time."

486. What, approximately, is the optimal limit of the duration of attention to a given topic in kindergarten, primary, grammar, high-school, and collegiate stages of school life, respectively? Show in what way these considerations affect the arrangement of the school program.

* 487. "Genius' is prolonged attention." "Prolonged" in what sense?

* 488. What is meant by the 'waves of attention'? By the 'fluctuation of attention'? Describe methods of experimental demonstration. What is the probable explanation of such phenomena?

489. What is meant by the 'span' of consciousness? By the 'range' of attention?

490. What is a 'tachistoscope'? How many simple impressions can one grasp in a single effort of attention? How many short words? What light does this throw upon the teaching of reading?

491. Discuss the value of formal exercises for the training of the degree and range of attention, such, *e. g.*, as those proposed by Miss C. Aiken, *Methods of Mind Training*, N. Y., 1896. Do you consider such training feasible? Would you introduce such exercises in your school work? Justify your answer. (Cf. G. M. Whipple, *Science*, xxvii., 1908 526-7.)

492. Pillsbury, the celebrated chess player, used, while blindfolded, to play twelve games of chess simultaneously. A court stenographer takes notes of the proceedings and carries on conversation at the same time. Are these instances of simultaneous attention?

493. Can children who are putting their attention upon 'form' (in writing, reading, number-work, etc.) be expected to gain much from the 'content' at the same time? Explain your answer.

494. Do children master the *mechanics* of reading better by the use of very interesting stories or by the use of relatively uninteresting ones? Why?

495. What is meant by 'distraction' in psychology?

(d) *Interest*

496. Define interest and show its relation to attention and to feeling. Is its relation to attention one of cause and effect or one of coincidence?

* 497. "If unpleasant feelings are bad for us, why should we be attracted by unpleasant topics? Why should we be fascinated by accounts of brutal murders and unpleasant accidents?" (T. P.)

498. Distinguish between interests that are ends in education and interests that are means in education. Of which kind was Herbart's 'many-sided interest'? To what extent is such interest the aim of modern education? Is there any disadvantage in having a multiplicity of interests?

499. "A majority of the errors made in teaching with respect to interest are due to confusing means and ends." Explain and illustrate.

500. Compare the interests of primitive and of civilized peoples, and of children and adults, with regard to their nature, variety, and intensity.

501. Of the 16 interests mentioned below, name (*a*) five that are largely instinctive, (*b*) two that are largely acquired, (*c*) two that are long delayed, (*d*) three that appear early in life and also persist, (*e*) three that that education should commonly weaken, (*f*) three that education should seek to strengthen, (*g*) the two that are rarest, (*h*) three that are risky as motives in the school:— (Th. P.)

- | | |
|-------------------------------|----------------------------|
| (1) in change and excitement | (9) in society |
| (2) in getting money | (10) in music |
| (3) in mechanical toys | (11) in rhythm |
| (4) in moving objects | (12) in American history |
| (5) in the other sex | (13) in adornment |
| (6) in living animals | (14) in the stock exchange |
| (7) in adventure | (15) in philosophy |
| (8) in one's personal affairs | (16) in romantic fiction |

502. Define and illustrate: 'immediate' interest, 'false mediate' interest, and 'true mediate' interest.

503. Show in detail the application of the psychology of attention to the doctrine of interest.

504. What form of attention is involved in the 'native' interests of children? Name four important instincts that underlie these interests. Give illustrations of appeal to them in the school.

505. Name six schoolroom devices that are designed to catch the passive attention. In what grades are they used?

506. When active attention is necessitated in the school, is any use made of the doctrine of interest?

507. Show how the development of secondary passive from active attention offers a basis for the solution of the problem of interest.

508. Explain the nature of the antithesis between 'interest' and 'effort.' Which position seems to you correct? (Cf. J. Dewey, *Interest as related to will*, Chicago; also D—iii.)

509. To what extent, in general, ought the teacher to strive to make school work interesting? To what extent ought the teacher specifically to plan assignments so as to exact hard work on the part of the pupil? Would your answer depend upon the age of the child? Upon the subject being taught?

510. Draw up briefs of the arguments advanced by Wendell and by Fitzpatrick with respect to the function of effort and interest in our educational system. What is your opinion of the merits of the argument? (B. Wendell, *N. Amer. Rev.*, clxxix., Sept. 1904, 388-401. F. Fitzpatrick, *Educ. Rev.*, xxix., 1905, 151-162. See also an editorial in *The Nation*, lxxix, Oct. 20, 1904, 311-312.)

511. "So far from enervating the pupil, the principle of interest braces him up to endure all manner of drudgery and hard work." Do you agree with this statement?

512. "A feeble objection to the use of interest . . . is that it leaves no room for training the sense of duty." Why "feeble"?

513. What is the rational way to interest pupils in work which is not immediately attractive?

514. Can you give instances from school experiences in which true interest has developed efficiency in work when other means had failed?

515. Give examples of the abuse of the doctrine of interest,—of "soft pedagogy gone to seed."

516. Indicate the bearing of the principles of 'self-realization' and of 'self-expression' upon the problem of interest.

517. Discuss the relation of interest to elective studies.

518. From what interests does the high-school pupil usually study Latin?

519. Do teachers have primarily to *create* or to *direct* interest ?
520. "All boys are not interested in the same things." Illustrate.
521. Show how the skillful teacher uses association to widen the pupil's interests.

(e) *Association*

522. State the fundamental 'law' of association. Is association a neural or a psychical process ?
523. How can association be envisaged neurologically ?
524. Show the operation of association in recall. In memory.
525. What is the relation of association and habit ?
- * 526. Distinguish between free and restricted associations.
527. Associative recall is usually said to be conditioned by recency, frequency, and vividness. To these are sometimes added primacy and congruence. Explain and illustrate these conditioning factors.
528. Allow your mental processes to develop without active control (as in reverie) for a short period. Reconstruct the series of experiences and indicate the nature of the associative connections therein revealed. Which of the factors of recall did you find ? Just how does association in such reveries differ from the sequence of mental processes in active thought ?
529. Show in detail the use of the above factors in school work.
530. Show how the 'trend of thought' determines association.
531. Show how one's mood determines one's associations.
- * 532. Explain 'latent ideas' and 'constellation.'
533. Define successive and simultaneous association.
- * 534. What is the 'law of contiguity' ? The 'law of similarity' ?
- * 535. Explain: "Association by similarity, association by contiguity, association by cause and effect, etc. are in reality not laws, but *sub-forms* of one type of successive association—the train of ideas."
536. Show the difference in the type of association indicated by the terms 'broad-minded,' 'narrow-minded,' and 'loose-minded.'

537. How does inconsistency betray lack of proper associations?

538. What is the nature of the associative sequence in the garrulity of old age?

539. Comment on the statement: organization is the key-note of mental training. Is organization ever carried too far? Illustrate.

540. Illustrate James' statement that the main function of the teacher is that of "building up useful systems of association in the pupil's mind."

541. Show the application of association in 'preparation.' In 'concentration.' In 'correlation.' Discuss the value of concentration and correlation as pedagogic devices for promoting organization. (B. E.—vi.)

542. Show the part played by association in the process of learning.

* 543. Explain or illustrate: "Types of character are largely types of association."

544. If a marksman never saw where his shots hit, how rapidly would his aim improve? (Th.)

545. If examinations are given, should the pupil be told his degree of success? How can this be done without placing too great a premium on the 'mark'? Should the pupil's papers be returned to him? Should only his errors be commented on?

546. Should the tables in arithmetic be built up gradually from knowledge gained elsewhere of the individual associations they contain or be given once and for all as a total orderly system? Why?

547. Illustrate the proper use of association in teaching the conjugations in Latin or dates in history.

* 548. What is meant by 'subconscious' association? By 'unconscious cerebration'?

* 549. Show how association as a neurological concept may avoid the necessity as the assumption of a 'subliminal mind,' 'unconscious mind,' 'subliminal personality,' etc. What is the objection to the use of such terms?

* 550. How is automatic writing explained?

* 551. In what three sources may the genesis of an idea be found?

H. Perception and Observation

References

Ad—vi.	K—256-9
An—vi., vii.	Th. E.—xv.
B. E.—53f., 215f.	Th. P.—241.
H. A.—1-52.	T. O.—vii.
J. P.—xx., xxi.	T. P.—ii., vi.
Ju.—vi.	

(a) Perception

552. Define cognition: give synonyms.

553. Explain the following definitions of perception, and show their points of similarity and difference. "Perception is the consciousness of particular material things present to the sense." "Perception is the simplest phase of cognition." "Perception is the first actual, definite, and complete step of the process of knowledge." "Perceptions are the simplest *concrete* processes in mind." "The purpose of perception is to identify objects and make the proper reaction to them." "Perception represents the direct, organized, and systematized *internal* reaction of the individual upon his environment."

* 554. What is meant by 'presentation' psychologically?

* 555. Is it strictly correct to say: "I *perceive* the truth of the argument"?

556. Give illustrations of the contribution of past experience in perception, *e. g.*, in the visual perception of a billiard ball.

* 557. Make a diagram that will illustrate the structure of percepts.

* 558. Explain: "A fully developed perception is itself simply a kind of habit."

* 559. Can you illustrate difference in perception due to difference in past experience?

* 560. Is the combination of the of the constituent elements of percepts due entirely to the environmet or in part to inherited tendencies?

561. What is the practical function of perception?

* 562. Which of these statements is correct? There is no reason for supposing that perception "involves a 'fusion' of separate sensations and ideas." (J. P.) "Perception involves the compact fusion of sensations into percepts of separate objects in the world." (Ju.)

* 563. Show the importance of the verbal element in perception.

* 564. Illustrate the 'spatial reference' of perception.

* 565. Define and illustrate 'pure perception,' 'assimilation,' and 'symbolic perception.' (T. P.)

566. Do adults differ from children more in their sensations or in their perceptions?

567. Children are notoriously suggestible. What does this show in regard to their perceptual processes?

* 568. "There is no fundamental psychological difference between perception and idea." (T.) What difference is customarily intended?

* 569. In what ways are perceptions commonly classified?

* 570. Explain the difference between the nativistic and empiristic views of the genesis of space perception.

* 571. Outline the genesis of tactual, visual, and auditory space. Show clearly the part played by movement in this development.

* 572. Would a creature unable to move its eyes or limbs develop any notion of depth or distance?

* 573. What is the theory of 'local signs'?

* 574. Describe the stereoscope and show what it indicates with regard to our perception of depth.

* 575. Describe the localization of sound. By what means do sounds become localized? What limitations appear in this localization?

* 576. What is the genesis of the perception of time ?

* 577. Is auditory or is tactual rhythm the more strongly developed?

(b) *Illusion and hallucination*

* 578. Define and illustrate illusion and hallucination. Show their relation to perception and their mutual points of difference.†

* 579. Explain: "What is commonly called perception is a mixture of perception, illusion, and hallucination." (Th. E.)

* 580. Describe several illusions which illustrate the complex nature of perception.

* 581. Draw figures to illustrate the best known 'geometrical optical illusions.'

* 582. Why is it not strictly correct to define an illusion as "a deception of the senses" ?

* 583. Have you ever experienced an hallucination during your waking moments? Describe.

* 584. What is meant by a 'point de repère' ?

(c) *Observation*

585. Define observation, and show its relation to perception and to attention.

586. Explain clearly the educative importance of observation. Name writers who have been prominent exponents of this principle.

587. Contrast modern and old-time schools with respect to the extent to which observation is used.

588. "There is not one person in a hundred," says Huxley, "who can describe the commonest occurrence with even an approach to accuracy." What things interfere with accurate observation and report? Discuss the bearing of these facts upon the evidence of witnesses in the court room.

589. "In our first attempts at observation we are 'all at sea.' " Why?

590. What inferences can you draw from Hall's study of the contents of children's minds concerning the observation of children? (H. A.)

591. "We observe easily what we are interested in and what we already know something about." Illustrate. Is there a discrepancy between this quotation and that from Huxley in Question 588?

592. Show the fallacy of the theory that the child should be trained to observe everything, —the "*omnium gatherum* theory of observation." What objects or events should we train children to observe?

593. Is there such a thing as a "general power of observation?"

594. Will training in a specific kind of observation, *e. g.*, botany, induce a general improvement of observation in other directions, *e. g.*, architecture?

595. Do you know individuals who are exceptionally good all-around 'observers'? Did the ability come from training? Of what sort?

596. Does nature-study actually develop good observers or do good observers simply do well in nature-study work?

597. Is the eye or the ear actually made more sensitive by observational training? If not, what does such training do?

598. Describe several methods of encouraging and training observation in the school.

599. Do you think it possible that 'observational' studies, *e. g.*, the natural sciences, might develop *ideals* of observation that would be of *general* service?

600. Arrange in the order of their service in training observation: physics, Latin, algebra, botany, physiology, German, chemistry, meteorology.

601. A well known authority says that one of the primary values of Latin lies in the fact that it trains the pupil to attend to small and seemingly trivial details. Comment on this statement.

I. Memory

References

An.—ix.	K—268-271.
B. E.—xi., xii.	O—vi.
H. Y.—268-276.	Th. E.—xvi.
J. P.—xviii.	Th. P.—78 f., 123 ff., 241.
J. T.—xii.	T. O.—xi.
Ju.—ix.	T. P.—x.

(Note: questions on retention and association may be reviewed in connection with this Section.)

(a) *The general nature of memory.*

602. Define memory: distinguish it from perception and from imagination.

* 603. Distinguish between reproductive and productive imagination. What is the meaning of this distinction: "All memory is reproductive imagination, but not all reproductive imagination is memory"? (An.)

* 604. Is a centrally aroused idea necessarily or intrinsically a memory idea?

* 605. Discuss the part played by recognition in memory.

* 606. Are most memories clearly placed in your past experience or merely accepted as familiar?

607. Explain clearly the relation between memory and (a) plasticity, (b) retention, (c) recall, (d) association, (e) habit.

608. What distinctions can be drawn between the following terms: memory, recognition, recollection, reminiscence, remembrance?

609. What is the error in speaking of memory as a "storehouse of ideas"?

* 610. Show how memory 'degenerates' into habit or attitude. (Ju.)

611. Explain: "The reproduction [in memory] is exceedingly incomplete, and is attended to not as a repetition but as a symbol of a total experience." (T. O.)

* 612. How are memory-types related to ideational types? To types of attention?

* 613. Illustrate the conversion of memories from one modality to another.

* 614. Discuss the tendency of verbal imagery to supplant visual or other 'direct' imagery in adults. Why does this take place?

615. Can we assert that any single experience is absolutely and irrevocably forgotten? Give examples of seemingly impossible recall. (Cf. W. James, *Psychology*, vol. i., p. 681.) Interpret the statement: "In one sense, it is probable that no item of our lives is ever literally and entirely forgotten." (An.)

616. Any one who takes an advanced course of study for purposes of general culture finds that a few years later an enormous number of details once known can no longer be recalled. Was the acquisition of these details so much time wasted? Why not?

617. "When memory begins to decay under the advance of age, there is a remarkable uniformity in the order in which certain kinds of knowledge disappear." (An.) What is this order?

618. "One mathematician who could repeat in order as high as fifty-two figures, could not repeat more than eight or nine letters given orally as were the figures." (K.) What important fact concerning the nature of memory does this illustrate?

619. Is unusually high retentive capacity always associated with a high degree of general intelligence? If not, why not?

620. Give examples of errors of omission, transposition, insertion, (interpolation), and substitution in recall.

621. Give striking instances of individual differences in memory. Upon what do they seem to depend?

622. Discuss the relation of retention and memory in general to age. Which of the following statements is true?

- (1) "Our native retentiveness is unchangeable." (J. P.)
- (2) "There are evidences of increase of the scope of memory thru training." (Ju.)
- (3) "The limit of development [of memory], tho fixed, is rarely reached." (O.)
- (4) "Mental grasp, or memory span, in reproducing impressions just received, increases with age in a marked degree." (K.)
- (5) "The receptivity and retentiveness of the child's brain is probably as great as that of the adult." (K.)
- (6) "Memory for isolated impressions reaches its climax early in the teens." (K.)
- (7) "The capacity for containing concrete sense-impressions is never so strong as at this period" [8 to 12 years]. (B. E.)
- (8) "The investigation shows that there is no 'memory period,' no period in early school life when the memory is stronger than it is at any later portion of the child's life, a period especially adapted to memorizing." (F. Smedley, *Rept. Dept. Child-Study*, Chicago, No. 3, 1902. Cf. also H. Y.—268 ff.)

* 623. Explain 'retroactive' and 'retrograde' amnesia. Give illustrations, and show their bearing upon the nature of retention and recall. (Cf. W. Burnham, *Amer. Jour. Psych.* xiv., 1903, 118-132.) How can these phenomena be reconciled with the principle of 'recency'? (Question 627.)

(b) *Conditions of goodness or improvement of memory*

624. In what ways can one's retentive capacity be improved?

625. Does "easy come, easy go" hold good with regard to the acquisition and retention of information?

626. Will a person who has a good memory over a short interval usually have a good memory over a long interval?

627. Illustrate the dependence of memory upon association, with special reference to the conditioning factors,—recency, frequency (repetition), and vividness (including primacy).

628. Show that to ensure efficient recall these factors may profitably be combined.

629. “Recency has the least significance in education.” (B. E.) Is this true in practise as well as in theory?

630. Is repetition more necessary to ensure memory when the information has been gained at first-hand, or when gained at second-hand? Why?

631. In what phases of schoolroom learning does repetition have an unquestioned right?

632. At what period of development is repetition and drill most useful? At what period is organization (use of ‘logical’ memory) most useful? Why?

633. Can you mention any instances in which memory is better ensured by a single strong association than by a number of varied associations?

634. Explain, with illustrations, why an increase in the number and variety of associative connections strengthens recall. Show the application of this principle in the appeal to more than one sense-department. Illustrate from classroom teaching, *e. g.*, of spelling.

635. Can one commit to memory more easily by reading aloud or by reading silently? Why? Can you give any experimental confirmation of your answer?

636. Which of the associative factors does ‘cramming’ imply?

637. Give reasons for and against the encouragement or practise of cramming. Is it to be unqualifiedly condemned? Is not the ability to cram often demanded in daily life, *e. g.*, by the lawyer in preparing a special case? Ought the school, then, to train in cramming?

638. Is ability to cram successfully a fairly safe index of good mental capacity?

639. Ought examinations to be announced beforehand? Justify your answer.

640. "One condition of remembering," says Ribot, "is that we forget." Is this true? Why? Is it because there is a limit to the amount of information that can be stored? (Cf. Ad—154 f.)

641. What is meant by 'mechanical' memory? By 'logical' memory? Describe methods of testing both kinds of memory. What is the 'memory span' test?

642. Would a person who ranked high in a memory-span (natural retentiveness) test be able to rank equally high in a test of 'logical' memory (memory for ideas), *e. g.*, when asked to reproduce the 'gist' of a piece of description or argumentation?

643. Is a good pupil more likely to reproduce what he has heard or read in the words of the teacher and text or in his own words? Why? Does the age of the pupil affect the outcome here?

644. "The key-note of modern methods in history and geography is to 'trace out' causal connections, to discover underlying principles." (B. E.) What effect does this have upon the permanence of the pupil's information? Why?

645. Referring to the disparagement of rote learning in modern methods of instruction, Angell says: "We are in danger of pouring the baby out with bath." What is the "baby"?

646. Cite instances in which rote learning has unquestioned value.

647. Does learning to spell demand more often the 'mechanical' or the 'logical' memory? Does the use of 'mechanical' memory in this connection mean that active thought is necessarily eliminated? What does it mean?

648. What high-school subjects are commonly assumed to be especially valuable for training the memory? Is the assumption justifiable?

649. When asked to state means for improving the memory, a class of students made the following suggestions: (a) concentrate your attention, (b) repeat the statements to be learned, (c) establish numerous associations, (d) keep your general health up, (e) think over your work, (f) visualize the printed page (if reading), (g) review the events of the day every night, (h) make notes of the information, then throw the notes away, (i) always study the same topic at the same hour and in the same place. Reduce these suggestions to the fundamental principles involved.

650. Explain the general nature and psychological value of mnemonic systems.

651. Explain typical mnemonic devices for committing dates, numbers, formulas, lists of names, foreign vocabularies, passages of prose or poetry, remembering the names of persons to whom one is introduced, etc. Which of these devices do you consider valuable? Which not? (Cf. A. Loiset, *Assimilative memory, or how to attend and never forget*, N. Y., 1899.)

652. Why is a self-devised mnemonic scheme better than one gained at second-hand?

653. Why is a natural (rational), more serviceable than an artificial connection? Give instances.

(c) *The experimental study of memory*

654. Describe experiments upon memory-span by the use of digits. How are the various sense-memories isolated in such tests? (Cf. Smedley, *Op. cit.*)

655. Show the bearing of these experiments upon the teaching of spelling.

656. What relation has been found between memory-span and school standing?

657. Describe Ebbinghaus' memory experiments made with nonsense syllables. State six conclusions drawn by Ebbinghaus with regard to acquisition, retention, and recall. What pedagogical applications can be derived from these experiments?

658. Why is sense material so much more easy to memorize than nonsense material, even when lists of isolated words are employed? (Cf. B. E.—p. 174.)

659. Describe Ebbinghaus' experiments upon slow *vs.* rapid memorizing, and state the results.

660. Discuss the psychological processes concerned in memorizing by wholes and memorizing by parts. Describe the results of experiments upon this point. What is meant by 'economy of learning'? (B. E.—xi.)

J. Imagination

References

An—viii.	K—101, 155, 259-268
H. A.—53-83.	O—ix.
H. Y.—126 ff.	Th. E.—iii., p. 115.
J. P.—xix.	T. O.—xi.
Ju—xi.	T. P.—x.

(Note: questions on imagery may be reviewed in connection with this Section.)

661. Define imagination. Show its close relation to retention, recall, re-presentation, memory-imagery, perception and memory proper. How does it differ from the last named ?

662. Show the part played by imagination in human progress.

663. Explain the meanings of the terms 'practical' imagination, 'literary' imagination, 'scientific' imagination.

664. Is there any difference between 'fancy' and imagination ?

665. What is the difference between 'productive' and 'reproductive' imagination ? (T. O.) When you read the description of an African forest, is the picture you construct of the scene an instance of 'reproductive' or of 'productive' imagination ?

666. What is the distinction between 'passive' and 'active' imagination ? (T. P.) Between 'constructive' and 'creative' imagination ? (K.)

* 667. Is passive identical with reproductive imagination ?

* 668. Explain the statement: "In one sense, all productive imagination is really reproductive." (An.) Is any reproduction of past experience a complete reinstatement of that experience ? (Cf. No. 611.)

* 669. "Productive imagination involves the appearance in consciousness of images which had never before entered the mind in their present

order and form.'” A(n.) Is not this true also of the imagery in passive imagination (revery) as well as in active imagination (creative in the narrow sense) ?

670. What is the source of the ‘material’ of which imagination is formed ?

671. Give illustrations from the sphere of invention showing that ‘new’ ideas result from the combination of principles already known. (Cf. the dispute as to whether Luther Burbank’s plumcots, thornless cacti, etc., are really new creations.)

672. Describe the operation of imagination when reading some bit of description or narration. Have you any ‘stock’ imagery which is apt to appear in connection with the mention of certain things *e. g.*, visualization of a polar bear on an ice cake whenever you read of the Arctic Ocean or North Pole ? Whence was this derived ? Show what application this may have on the illustrations in school text-books.

673. Why is imagination helpful in developing a good English style ? What are the literal meanings of the words *insipid*, *involved*, *essay*, *exasperate* ? (T. P.)

674. Give some account of children’s daydreams, their contents at different ages, their relation to creative imagination, changes in type at adolescence, sex differences, tendencies to morbidity, etc. (H. A.) What dangers may arise from indulgence in daydreaming ?

675. At what age does the power to image constructively become developed in children ?

676. What is the relation of children’s lies to the development of their imagination ?

677. Illustrate from school work successes or failures due to good or to poor constructive imagination.

678. “This imaginary world may seem as real and more important to the child than the world of solid reality.” (K.) Give instances.

679. At what age does imagination reach its climax in children's plays?

680. In what ways is the impulse to create manifested in early childhood? Is the direction of the impulse determined largely by environment or by emotional and instinctive tendencies?

681. Is the child really more imaginative than the adult or is he simply less critical of his imaginations?

682. "When imagination is used for purposes of practical construction its products must be subjected to critical examination." How is this done? (Ju.)

* 683. Give illustrations of the use of creative imagination in science. What are the purpose and the worth of such creations? What is meant by a 'construct'? (Ju.)

684. Show how constructive or creative imagination must be exercised by the plumber, the sail-maker, or the traveller as well as by the poet, play-wright, or man of science.

685. What is implied by the phrase: an unhealthy imagination"? What undesirable consequences may result from too much imagination of a certain kind?

686. Discuss the psychological consequences of the fiction-reading habit.

* 687. What is the difference, psychologically, between the type of imagination displayed in the historical novel and in romantic fiction?

688. Creative imagination evidently depends in part upon an adequate experience, upon ability to concentrate the attention, and upon general intelligence. Upon what else does it depend? Why, for instance, can not all intelligent people who are good musicians compose equally good music?

689. Explain why "careful training, if continued for a long time, checks the tendency to free activity and may destroy the power of creative imagination".

690. What is the effect upon the creative imagination of always telling children not only what to do, but also how to do it?

691. What general rules can you formulate for developing and training creative imagination?

* 692. Cut a number of cards about three inches square and make on them a series of large ink-blots of varying contour and shading: test yourself and others to see what objects you can see in these blots. Try children with the same blots. (Note: a standardized series of ink-blots may be purchased of C. H. Stoelting, 12 S. Green St., Chicago, Ill.)

693. A figure well known to mathematicians as "Möbius' surface" offers opportunity for testing visualization. Cut a slip of paper about three inches wide and twenty long. Paste the ends together after making a *half* twist in the strip. (1) Can you paint or water-color *one* side of this strip? (2) Cut with scissors along a line in the middle of the strip parallel to the edges. (3) Repeat the cut a second time. Before painting or cutting, study the strip carefully and try to foresee exactly what will happen in each test. Were you successful? Is your capacity to handle visual images in general good or poor?

* 694. Try to complete the snatches of sample music so often printed as advertisements on the back of sheet music. Or select some new and interesting short story: read only a portion, and complete it yourself. Compare your production with that of friends and finally with that of the author. See what limitations or defects appear in your creative work. Repeat the test and see if practise brings increased facility.

Conception and Language

References.

Ad—vii.	Ju—x., xi., xii.
An—x.	K—271-4.
B. E.—ix., xvii.	Th. E.—6, 68, 116, 175.
H. A.—1-52.	T. O.—xii.
J. P.—xiv.	T. P.—xi.
J. T.—xiii.	

(a) *The formation of concepts.*

695. Define conception: show how it differs from perception, memory, and imagination.

696. What is meant by 'thought' *in sensu stricto*? Is it correct to say: "I can't *think* what his name is," or "I can't *think* how you could have done it"?

* 697. What difference exists between an 'abstract idea' and a 'concept'? (T. P., but note other usages.)

698. Make clear why conception is "the great simplifier of our knowledge, the great labor saving device." (An.)

699. Explain the statement: "General ideas are in essence nothing but dispositions toward activity." (Ju.)

700. Explain clearly the genesis of concepts: give two examples.

701. Explain the terms 'comparison,' 'abstraction,' and 'generalization' as applied to the formation of concepts.

702. Explain how a concept may be described as a "condensation of experience." (B. E.)

* 703. Show that we have concepts of single objects as well as of groups of objects. (An.)

* 704. Explain the statement: "The process of condensation of ex-

perience in the formation of concepts is not a compressing, but a selection of common elements.”

705. Illustrate and explain the significance of the dictum: “Proceed from the concrete to the abstract and from the particular to the general.” Should this process in general be performed by the pupil for himself or by the teacher for the pupil? (B. E.—xvii.)

706. The teacher must see that the process of condensation in the formation of concepts is not taken for granted. Give instances of the neglect of this principle.

707. Give illustrations showing how concepts should be developed in the classroom. Give illustrations of the failure of a teacher to follow the proper method.

708. Does the maturity of the pupil or the difficulty of the subject matter make any difference in the desirability or necessity of developing concepts inductively?

709. Give instances of dislike or inaptitude for certain studies due to too early entrance upon them, *i. e.*, before their concepts could be properly understood or appreciated.

710. Name what seem to you the six most difficult concepts that are commonly developed in the grammar grades. In the high school. What important new concepts are introduced in algebra?

711. Can you confirm the assertion that some persons have a constitutional tendency toward generalization and concept-forming whereas others have a constitutional tendency to emphasize points of difference and work more easily in the realm of the concrete?

712. Explain the statement: “Education consists in the making of dictionaries.” (Ad.)

713. Comenius proposed that pupils, before beginning Latin, should be made to learn by rote a lexicon of one hundred pages. What are the objections to this proposal? Do these objections apply also to the learning of short vocabularies?

714. What information concerning the concepts formed by young children is afforded by Hall's study of the "Contents of Children's Minds on Entering School"? Ought a similar study to be undertaken by every first grade teacher? By teachers in higher grades?

715. Which of the following statements represent the truth accurately? (1) The business of the teacher is chiefly that of refining the pupil's concepts. (2) "Each conception thus eternally remains what it is, and never can become another. . . The mind may drop one concept and take up another, but the dropped concept itself can in no intelligible sense be said to change into its successor." (J. P.) (3) "Every concept is in a sense a working hypothesis, a tentative manner of thinking about things, and is subject at need to revision." (An.)

716. Is it true that "the conceptions acquired before thirty remain usually the only ones we ever gain"? (J. T.)

717. In loss of memory with advancing age the more elaborate concepts are less quickly lost than concrete memories. Why? Cf. Question 617.

* 718. Trace the development of the concept of 'self.'

719. Following Kirkpatrick, three degrees of definiteness of concepts may be named: (1) two classes of things, *e. g.*, dogs and cats, can be distinguished, but the difference between them cannot be stated: (2) one or more characteristic differentiating traits can be stated, *e. g.*, dogs 'bark,' cats 'mew,': (3) a complete and scientifically accurate limiting definition for each class can be given (perfect concepts). In which of these classes do the child's concepts belong? In which do the adult's? Have you any concepts that are still in the lowest degree of definiteness? Name them. Have you any perfect concepts? Show that the process of education consists virtually in raising concepts toward the perfect type.

* 720. What is meant by the denotation and the connotation of words? Which is the more easily grasped?

721. State the exact difference between a 'plant' and an 'animal.'

Between 'science' and 'philosophy.' Write a definition of the word *no*. Why are these definitions so difficult? Does the difficulty you experience in accurate definition mean that you have a similar difficulty in using these terms? May schoolroom definition tests do actual harm? (Ad.—vii., cf. also D—p. 189.)

722. Which is easier, to pass from the intelligent use of a word to its definition, or *vice versa*? Why? Which is the natural order of procedure? Which is the more usual order of procedure in the classroom? What was Pestalozzi's opinion with regard to the use of concept-words?

723. What is meant by object-lessons? By the objective method? What is their relation to the problem of developing concepts?

724. How is a concept represented in consciousness? What carries its 'meaning'?

* 725. Discuss the possibility of representing a concept by a 'generic image' or 'abstract idea' (T. P.) of the composite photograph type?

* 726. What is the dispute between the 'nominalists' and the 'conceptualists'?

727. What image arises in your mind when you read the word *church*? Is it a clean-cut image of a specific church, or a blurred and confused image of such a church, or is it seemingly a true composite of various churches you have seen?

728. Does every concept involve an image? Is the image itself important, or the meaning that we attach to it?

(b) *Language*

729. Show carefully how the use of language or symbolic representation affords an essential condition for the development of concepts. What forms of symbolic representation can function in this way? In how many different forms can a word exist in consciousness?

* 730. Explain how it is possible to use words intelligently without attendant imagery.

731. "Words should be checked from time to time by concrete images." (Ju.) Why?

* 732. Give an account of the origin of spoken and of printed or written language. What is the imitation theory, the 'interjection' theory? (T. P., Ju., cf. also E. Huey, *The Psychology and Pedagogy of Reading*, chs. x. to xii.)

* 733. "It is said that the letters of the alphabet are derived from hieroglyphics, *i. e.*, pictures of actual objects in the external world and have only by very slow degrees become sound-symbols. What psychological process would this evolution illustrate"? (T. P.)

734. What animals do you know to be capable of articulate speech? Have you ever observed an animal signal to another by sound? What did the signal mean? How many different signal-sounds have you known an animal to employ? (T. P.)

* 735. Explain the statement: "Animal language communicates only attitudes." (Ju.)

* 736. What is the value of sounds as a means of social communication?

737. Show the interrelation between progress in the development of ideas and progress in the use of language.

738. Show how a pupil's vocabulary offers a fairly accurate index of the number and nature of the concepts he has formed.

739. Suggest methods for determining the size of the vocabulary of pupils at different ages. (Cf. E. Kirkpatrick. *Pop. Sci. Mo.* lxx., Feb. 1907, 157-164, also G. M. Whipple, *Psych. Rev.*, xv., March, 1908, 94-105.)

* 740. Illustrate the parallelism between changes in words and changes in knowledge and customs.

741. Give instances of the failure of children or of adults to appreciate metaphorical or figurative expressions.

742. Illustrate the effect of early home training in the use of language upon the pupil's work at school.

743. Give instances of teachers who failed to insist with sufficient care upon the exact use of words. Of teachers who were over-rigorous in their correction of the pupil's language.

744. Language is essentially a social-product and a means of communication. If it were possible for a man to develop from infancy to maturity without the presence of other human beings, would this man develop any sort of language? Give reasons for your answer.

L. Judgment and Apperception. Reasoning. Induction and Deduction

References

Ad—vi.	K—274-282.
An—xi., xii.	O—xi.
B. E.—viii., xix. to xxii.	Th. E.—17, 62 f., 21 f., 267-271
D—xv.	Th. P.—x.
J. P.—xxii., p. 326.	T. O.—xii.
J. T.—xiv.	T.P.—xi.
Ju.—xi.	

(a) *Judgment*

745. Define judgment; show its reciprocal relation to concept forming.

746. Show the part played by judgment in contrast to that played by habit in our mental economy.

747. A judgment is usually said to be embodied in every proposition or sentence. Do all sentences embody judgments? Does, for example, the sentence "The grass is green" imply a process of judgment?

* 748. According to many books on logic, a judgment always implies the use of two terms, *e. g.*, "The dog runs" is really "The dog is a running thing." Is this psychologically correct?

* 749. If you receive an answer to a question, the answer will have the form of a judgment. Can you tell, by the way the answer is given, whether it is a true judgment or a mere hearsay answer? (T. P.)

750. How, in your own experience, does a judgment that you have formed by effort of attention differ from a statement taken 'on trust'? (T. P.)

* 751. Show how simple judgments approach the percept in type.

* 752. Distinguish between 'universal' and 'particular' judgments. Between 'positive' and 'negative' judgments. Between judgments of likeness and of difference. Between 'analytic' and 'synthetic' judgments. Give illustrations of these forms.

* 753. What is meant by 'abstract' judgments? By 'intuitive' judgments? By 'hypothetical' judgments?

* 754. Distinguish between 'practical' and 'conceptual' judgments. (B. E. Cf. also L. Hobhouse, *Mind in Evolution*, London, 1901, ch. vi.)

* 755. What are the advantages and the limitations of the practical judgment? Is this type of judgment found in animals below man?

756. What is meant by 'common sense' translated into psychological terms? In what respect do our 'common-sense' judgments differ from scientific thought?

757. What is the deficiency, psychologically speaking, of the person who "has no judgment"?

758. Give instances where parents have allowed either too great or too little freedom of judgment in children.

759. Describe typical cases of over-readiness or over-hesitation in the passing of judgments.

760. Show how the ability to pass quick and certain judgments depends on attention, observation, and memory; how it depends on the possession of clear concepts.

761. Give illustrations of the effect of emotional bias on judging.

* 762. What is the relation between (subjective) certainty and quickness of judgment?

763. Name branches of study in the grammar and high schools that you think will assist in training the pupil's judgment.

(b) *Apperception*

764. Compare the following definitions of apperception:

- (1) "Apperception is that form of mental activity under which per-

cepts are brought into relation with our previous intellectual and emotional states and assimilated with them.”

(2) “Apperception is the general name for the process of taking anything into the mind and giving it position and meaning in the mind.”

(3) “Apperception is to the mind what digestion is to the body. The body reacts on food and produces tissue. The mind reacts on perceptions and produces knowledge.”

(4) “The speciality of apperception is the relational activity of consciousness. It may be viewed as psychic reaction, interpretation, elaboration, thought, all taken together.”

(5) “Apperception verily means nothing more than the act of taking a thing into the mind.”

(6) “Apperception implies the active assimilation or interpretation of perceptions by means of previously acquired information.”

(7) “Apperception is perception ‘writ large.’

What points are emphasized in all these definitions? Which liken apperception to perception? Which to the process of judgment?

* 765. The common geometrical-optical illusions, such as the cube, stair-case, etc., are classed by some writers as instances of apperception. What objection may be made to this?

766. Give a general account of the development of the theory of apperception. (Cf. C. De Garmo, *Lange’s Apperception*, Boston, 1900.)

767. What is meant by the ‘apperceiving mass’? By the ‘apperceived ideas’?

768. Discuss the general importance of the concept of apperception in educational theory and practise.

* 769. “When people are at loggerheads about the interpretation of a fact, it usually shows that they have too few heads of classification to apperceive by.” Illustrate.

770. Show the part played by apperception in the five formal steps.

(c) *Reasoning*

771. Explain what is meant by 'reasoning.'

772. Show that conception, judgment and reasoning are all phases of the same general type of mental activity.

* 773. "The precise significance which we attach to the term 'reasoning' is largely a matter of arbitrary terminology. . . Let us make the ability to deal with novel data the technical differentia of reasoning." We may define reasoning "broadly and provisionally as *purposive thinking*." (An.) Is it impossible to give more exact limitations to the term than these? Illustrate the forms of mental activity that would be comprised in the definitions quoted.

* 774. "Very often reasoning is cut down so that it becomes simple judgment." Illustrate.

775. What is the difference, psychologically, between reaching a conclusion through a train of simple associations and through a full-fledged process of reasoning? Which of these methods is the more common?

776. Show how a conclusion may be rational but not reasoned.

777. What is the syllogism? What is its purpose and value? In what manner do our processes of reasoning differ from the form embodied in the syllogism?

* 778. Show how association by similarity may assist in reasoning.

779. How true is the assertion that man reasons but that other animals do not reason?

* 780. What are the probable physiological conditions for the higher forms of conceptual thinking?

781. How early in the child's development does reasoning appear?

782. What is the nature of the so-called 'practical' reasoning of early childhood? (K.)

783. "Give a number of instances of childish reasoning and explain the modes of reaching a conclusion in each case." (K.) What errors were made?

784. Suggest a method for testing the capacity of young children to reason.

785. "Have children find out what you are thinking of by asking questions that you answer by yes or no. Notice how many of their questions are particular or ignore former answers, and hence show lack of conceptual thought and reasoning." (K.)

786. A small boy planted a coin to make other coins grow. What is the nature, psychologically, of this error?

787. "When the child enters school the conditions are usually unfavorable for developing his power and tendency to reason." (K.) How unfavorable? How could this be remedied?

788. Show the value of 'problem-setting' and 'problem-solving' as a method of instruction. In what subjects is it common? In what rare? Can you suggest means for augmenting its use in the latter subjects?

789. What distinction may be made between problem-setting in the grades and in the high school, and why? (D.)

790. "In general we may say that every question should tend to strengthen the pupil's mental power by inciting him to think." (D.) Give examples of questions that do, and of questions that do not attain this result.

791. State four important principles governing the training of reasoning in school children. What difficulties arise in this work? (Th. E.)

792. "The common error is never to teach reasoning, but only the results of someone else's reasoning." (Th. P.) Give examples.

793. What high-school studies are commonly believed to train reasoning? Do they actually do so?

794. Are high-stand pupils in mathematics the best reasoners in the problems of daily life? (Cf. F. Lewis, *School Rev.*, xiii., April, 1905, 281-292.)

795. What are the chief sources of error in reasoning and how can these be met or corrected by school training?

796. Could the simpler rules of logic be successfully taught in the schools? Should they be taught, and when?

797. Estimate as well as you can the amount of actual reasoning carried on by the average voter in reaching a decision as to the merits of a political issue. Do you think that the public school can so train its pupils as to eliminate blind partisanship and ensure judicial and unbiassed consideration of such issues? If so, how, and in connection with what studies?

* 798. What form of reasoning is the "reasoning backwards" of Sherlock Holmes?

799. Distinguish between inductive and deductive reasoning, and give two examples of each. Show how they are united in ordinary reasoning.

(d) *The inductive method*

800. Is there any distinction between an 'inference,' an 'induction,' and a 'generalization'?

801. What is meant by 'imperfect induction? Give examples. Are most generalizations of the perfect or of the imperfect type?

* 802. Discuss the value and usefulness of imperfect inductions. In general, how many observations are required in scientific work to establish the validity of an induction for practical purposes?

803. What high-school studies conform largely to the inductive type of development?

804. What, in general, are the proper steps to be followed in using the inductive development method? Outline briefly a typical inductive lesson.

805. Is the verification of an induction, *e. g.*, that heat is a mode of energy, generally given sufficient prominence in school work, *i. e.*, does the pupil generally rely on the teacher's statement or does he test the induction himself? (Th. P.)

806. Writers sometimes complain that the teaching of science contains too much 'pseudo-discovery.' What is meant?

807. What is meant by the 'type' method? How does it supplant or modify the use of the full inductive method? What are its advantages? What its disadvantages? (B. E.)

808. Explain the method of 'formal steps.' Show how they embody or represent the use of the inductive method. What application of association or of apperception do they illustrate?

809. State the purpose of each step. Which step makes special use of the question and answer method?

810. How important are the formal steps? What errors frequently attend their use?

811. What were Herbart's original steps? What modifications were made by Ziller and by Rein? (Cf. B. E.—xix., also C. DeGarmo, *Essentials of Method*, Boston, 1889, and C. A. and F. M. McMurry, *Method of the Recitation*, N. Y., 1903.)

812. Comment on the statement: "Because of their formal nature, the formal steps have a universal application." What types of lesson do not admit such application?

(e) *The deductive method*

813. What is the general purpose of the deductive development lesson? (B. E.—xx.)

814. What are the advantages in class work of using the deductive development method rather than the simpler 'telling' method? What possible disadvantages?

815. In what studies is the use of deduction prominent?

816. What are the chief causes of difficulty in deductive thinking?

817. "The important factors in deductive reasoning are the power of abstraction, enabling one to break up a given fact into its elements, fertility of knowledge of the properties of these elements and sagacity in the

choice of the essential one." (Th. E.) Illustrate this statement. Which of these capacities are apt to be poorly developed?

818. The crucial step in deduction is the search for the proper class under which to think of the fact in question. In school work does the pupil usually make this search independently or is it done for him by the teacher? If the task is difficult, *e. g.*, proof of a proposition in geometry, is it better to assist the pupil by hints and questions or to tell him outright?

819. Is it possible to teach geometry successfully in the high school without the use of a text-book? If not, why not?

820. Should a teacher expect all high-school pupils to reason out the propositions in geometry or the translations in Latin? (Th. P.)

821. "Illustrate failures in reasoning in geometry, in grammar, or in geography, due to the absence of knowledge." (Th. P.)

822. What is meant by the 'anticipatory' type and by the 'explanatory' type of deductive lesson? Give an example of each type. (B. E.)

823. Can you discern any phases or steps in the use of the deductive method analogous to the formal steps of the inductive method? If so, what?

824. What sort of verification is possible in mathematical deduction?

M. Affective Processes. Feeling, Emotion, and Sentiment

References

Ad—254 ff.	K—87, 215-8.
An—xiii., xiv., xviii., xix.	O—x.
B. C.—285 f.	Th. E.—v., 117, 172 ff.
B. E.—223 f., 280-3.	Th. P.—xii.
D—iv.	T. O.—v., ix., xiii.
J. P.—xxiv.	T. P.—iv., viii., xii.
Ju—vii.	

(For a more extended account consult E. B. Titchener, *Lectures on the Elementary Psychology of Feeling and Attention*, N. Y., 1908.)

(a) *Affective experience in general. Affection and feeling*

825. How is affective experience in general demarcated from cognitory experience or volitional experience?

* 826. In what respects do the simple affective qualities, pleasantness and unpleasantness, differ from sensation? (T. O.; T. P.)

827. Affection, feeling, emotion, passion, mood, sentiment and temperament are all terms descriptive of certain characteristic forms of experience; what points of likeness and what points of difference can you mention in these experiences? Under which terms would you place the following several experiences: anger, thirst, unpleasantness, happiness, 'sense' of well-being, 'sense' of beauty, melancholy, fear, antipathy, pride, nausea?

* 828. How many simple affective qualities are commonly recognized? How many are recognized by Royce? By Wundt? What qualities do these writers add to pleasantness-unpleasantness, and on what ground?

* 829. Can you name feelings that are plainly characterized by excitement? By depression? By tension? By relief? By restlessness?

* 830. Is there more than one quality of pleasantness? Is the pleasure of a warm bath any different, as pleasure, from that which attaches to a successfully concluded argument?

* 831. What is the distinction between pain and unpleasantness?

* 832. What forms of sensory experiences are least apt to be neutral or indifferent, *i. e.*, unaccompanied by affective qualities?

* 833. What theories have been advanced to account for the genesis of affective processes?

* 834. What is Münsterberg's theory of pleasantness-unpleasantness?

835. Under what bodily and mental conditions does pleasantness, under what does unpleasantness appear? (An.)

836. What is the general functional significance of affective experience? What is its biological sanction?

* 837. Does pleasantness determine advantageous response or result from it?

* 838. "Disagreeable feeling is due to a conflict, pleasurable to co-operation of motor tendencies" (Ju.) Explain and illustrate.

839. Give illustrations of the statement: "The function of the unpleasant in consciousness is evidently to furnish an immediate and unambiguous index of conditions which menace the welfare of the organism." (An.) Give instances of harm resulting from the failure to heed this index. Can you cite cases in which we deliberately act in spite of unpleasantness and yet find our act advantageous? How explain such exceptions?

840. If intent upon solving some problem, under what conditions would this intellectual effort be agreeable, under what disagreeable?

* 841. Is the affective coloring of a memory always similar to that of the original experience? Is it stronger or weaker than the latter?

* 842. Do we remember the original affective coloring or have actually a fresh affective reaction attached to the recalled experience, *i. e.*, is there an 'affective memory'?

* 843. Describe the 'method of impression' as used in the experimental investigation of affection. (T. P., see also the same writer's *Experimental Psychology*, vol. i., ch. vii.)

* 844. Describe the 'method of expression.' What changes in blood pressure, pulse, respiration, and muscular tone are said to accompany pleasurable, and what unpleasurably toned experiences? Are these accompaniments easily demonstrated, and how?

845. How does 'feeling' in the narrow sense differ from affection and from emotion? (T. O., T. P.)

846. State four different usages of the term 'feeling.' (T. P.)

847. Does the phrase 'feel afraid' indicate that fear is a simple feeling?

848. What is the difference between the stimulus that produces simple feeling and the stimulus which produces emotion?

* 849. "Write out a list of all the 'feelings' you can think of,—that is, of all the phrases beginning with 'I feel' or 'I have a feeling of.' Find by introspection how many of them really contain the element of affection, and how many are merely sensations or perceptions." (T. P.)

* 850. Which can animals express to us the more clearly, their sensations or their feelings? Why? (Th.)

(b) *Emotion*

851. How can emotion be defined and differentiated from simple feeling and from sentiment and mood?

852. Show the close relation of emotion and instinct.

853. What instinctive tendency underlies the delight of children in "peek-a-boo"?

* 854. "Nothing surprises us so much as new emotions that suddenly come into our lives, as novelists have often shown in one sphere of instinctive development." (K.) Explain.

855. In general, what makes a situation emotional?

* 856. "It is a distinguishing mark of all emotional conditions that conscious activity is thrown backward and inward upon itself instead of going forward in the form of well-adjusted processes of control. . . . Emotion is a phenomenon of interrupted conscious action." (An.) Work out illustrations of this principle in the case of fear, embarrassment, grief, and anger.

* 857. Can you explain how laughter, as in joy, is an instance of undirected overflow of energy resulting from a 'barrier' or an interruption of normal consciousness? How does the laugh produced by a joke accord with this principle? What theories have been advanced to explain laughter in general? (Cf. J. Sully, *Essay on Laughter*, N. Y., 1902.)

858. The significance of emotion is commonly found in its "monitorial function." Explain and illustrate.

859. It is stated that "every emotional reaction represents the survival of acts *originally useful*." Can equal value or usefulness be found in modern life, *e. g.*, for jealousy or for rage?

* 860. Explain Darwin's views of the nature of emotive expression. What important principles did he formulate to explain such expression? (Cf. C. Darwin, *Expression of the Emotions in Man and Animals*, London, 1892.)

861. Give an account of the Lange-James theory of the emotions.

* 862. Are the physiological disturbances which form the emotional substrate felt as organic (sensory) experiences in consciousness?

* 863. What evidence for the theory is furnished by pathological cases of 'objectless' emotion?

864. What does James mean by the statement that "a disembodied human emotion is a sheer non-entity"?

865. Does the Lange-James theory apply equally well to the 'coarser' and to the 'finer' emotions? Have you ever felt any decided emotion without characteristic bodily disturbances?

866. Make a list of ten words descriptive of emotional experiences

that indicate the importance of organic sensations as factors in emotion, *e. g.*, 'cast down' by bad fortune. (T. O.)

867. Have you ever observed in yourself the appearance of a bodily reaction before its accompanying emotion has fully developed? Is the start of fright which is sometimes observed before fright is actually felt a case in point?

868. Do skillful actors feel the emotions they portray?

* 869. "It has been shown in a great variety of ways that the statement in this form [original Lange-James theory] cannot be accepted." (Ju.) How has this been shown?

870. Describe as fully as you can all the bodily symptoms of rage, fear, grief and joy.

871. Give instances of the intellectual appreciation of danger without the emotion of fear.

872. Are men of vigorous action always men of strong emotion?

873. Are men of strong emotion always men of vigorous action?

874. Do you know persons who seem to be virtually without emotion? Is this due to inherited tendency or to circumstances of life?

(c) *Sentiment, mood and temperament*

875. In comparing emotion and sentiment, which represents a higher level of development? Which involves a process of judgment? Which implies active attention? (T. O., T. P.)

* 876. Give illustrations of typical expressions of 'intellectual,' 'esthetic,' 'social,' 'ethical,' and 'religious' sentiments.

877. Discuss the practical utility of the esthetic sentiments.

878. Give examples of the operation of esthetic sentiments in the play of adults.

879. "Give six instances of ugliness, three of ugly sights and three of ugly sounds, from your usual surroundings. Why are they ugly?" (T. P.)

880. Why does a man cough when embarrassed? Why does he rub his eyes, frown, or scratch his head when perplexed?

881. What is meant by mood? By passion? Name typical moods.

882. How is temperament related to mood and emotion?

883. Describe instances illustrative of the contagiousness of mood in an audience, crowd, or other assemblage. What suggestions do these offer to the teacher?

(d) *Emotion and education*

884. It is sometimes said that we do not master our emotions as we do our thought, but that our emotions master us. Is this true? Does it preclude any education of the emotions?

885. What, in general, can the school do in training or controlling the emotional life of the pupil? Can emotions be stimulated or trained by didactic instruction? What emotions should be stimulated and exercised? What eliminated or repressed?

886. Explain and illustrate the statement: "The media of intellectual transmission and the media of emotional transmission stand upon different levels." (B. E.)

887. Should emotions be aroused for their own sake or only for the sake of their influence on future conduct? Are the emotions aroused by artistic activity, *e. g.*, a beautiful painting, or entrancing music, an exception to the general rule? (Th. P.)

888. Show the possibility of emotional education in art, literature, music, and religion. What errors are apt to appear in the use of such material in the school?

889. Criticise the following method of 'studying' Millet's "Gleaners." "How many women do you see in the picture? How many horses? What else do you see in the picture? etc." (B. E.)

890. State and illustrate three methods by which a teacher could arouse the feeling of love for animals in six-year pupils. (Th. P.)

891. Is it possible, following the suggestion of the Lange-James theory, to create or to develop an emotion, mood, or feeling, *e. g.*, love, sociability, anger, esthetic appreciation, by acting out its expression to the best of our ability?

892. Would the punctilious observance of the forms of politeness develop correspondingly keen feelings of kindness, graciousness, sympathy, altruism, etc.?

893. A man who was prone to moods of sulkiness and depression was once given the advice by a psychologist: "Keep the corners of your mouth drawn up." Would you expect a cure?

894. What is the psychology of the old piece of advice to count ten before you speak when you feel the rise of anger? Why is the advice so hard to follow? Could one, however, establish it as a habit?

895. Discuss the relation of feeling and emotion to attention and interest.

896. Show the importance of the emotional element in ideals. (B. E.)

N. Formal Discipline or General Mental Training

References

Ad—v. B. E.—xii., xiv. Th. P.—xv.

For more extended treatment, consult also the following:

B. Hinsdale, *Studies in Education*, Chicago, 1896, ch. ii.

B. Hinsdale, *Proc. Natl. Educ. Assoc.*, 1894, 625-635.

M. O'Shea: *Education as Adjustment*, N. Y., 1903, chs. xiii., xiv.

N. Norsworthy, *N. Y. Teachers' Monographs*, iv., 1902, 96-9.

E. Thorndike, *Educational Psychology*, N. Y. 1903, ch. viii.

P. Wardlaw, *Educ. Rev.*, xxxv., Jan., 1908, 22-32.

J. R. Angell, *Educ. Rev.*, xxxvi., 1908, 1-14.

W. B. Pillsbury, *do.*, 15-27.

C. H. Judd, *do.*, 28-42.

E. L. Thorndike, *Amer. Jour. Psych.*, xix., 1908, 374-384.

Compare also Questions 258, 420, 491, 593-601, 648, 763, 793-7.

897. Give a general account of the problem of formal discipline.

898. What is the common or popular view as to the nature of general training, and what is the basis of this view?

899. Name three chief lines of argument advanced by those who believe in the possibility of formal discipline.

900. How does a 'faculty' psychology lend countenance to the belief in formal discipline? What is the fallacy of this psychology?

901. Judging from daily experience does mental ability seem to be general or specific in nature? Do you know any persons who possess conspicuous all-around ability? How many? Is their 'all-aroundness' evidence of the possibility of general training? If not, why not?

902. Are persons who are very neat in their personal attire always neat in their work?

903. Explain and illustrate the difficulty of separating the relative influence of inheritance and maturity from that of acquisition and training in the search for the source of general mental ability.

904. Give instances of the seeming influence of formal training that are to be attributed to "mere inner growth and maturity."

905. Show how the 'fallacy of selection' may affect our estimate of the possibility and value of general training.

906. What analogy concerning mental training is drawn from the facts of 'cross-education' (physiological)? What criticism can be made upon this argument from analogy?

907. Describe several psychological experiments in sense-discrimination, observation, memorizing, etc., bearing upon the problem of formal training and state their results.

908. What degree of correlation, in general, is found to exist between specific abilities or capacities, *e. g.*, between ability to estimate lengths and ability to estimate weights?

909. What are the practical consequences for education, *e. g.*, in methods of teaching, estimate of educational values, arrangement of the curriculum, of elective studies, etc., of the experimental demonstration of the restricted nature of mental training?

910. "Can you think of any mental ability, to improve which the study of facts in themselves useless is necessary"? (Th. P.)

911. Is there any warrant for introducing a subject into the curriculum, or for encouraging a pupil to pursue it, primarily for the sake of its disciplinary value? Is this ever done?

912. If we admit that a given subject has a certain disciplinary value, does this value inhere in the subject as such, or does it attach to the method of teaching it? Is it, then, the subject, or the method, or the skill of the teacher, that furnishes opportunity for whatever disciplinary value may exist? Could a good teacher produce a given disciplinary value from any subject he is able to teach?

913. Do you think that the habit of being systematic and accurate in the work of the chemical laboratory would, as a rule, influence a girl's methods of cooking?

914. Discuss the relation of formal training to the psychology of habit. Show that formal training often assumes the existence of 'generalized habits.'

915. What is meant by the 'spread' of training? How extensive, in general, is this spread? What general principles govern such spread?

916. What is meant by 'identity of substance' and by 'identity of procedure' in various phases of mental activity? Give illustrative examples.

917. To what extent, roughly, does knowledge of arithmetic assist in geometry? In biology? Does knowledge of Latin help one to learn French? To learn German? To master psychology? Does training in geometry make physics easier? Why?

918. Rank in the order of their applicability (in subject-matter or method of procedure) to the problems of daily life the following studies: arithmetic, physics, Latin, geology, English, civics, American history, European history, hygiene, psychology, physiology.

919. Rank in the order of their probable improvement of the power to reason well about education the following: geometry, physics, physiology, psychology, American history, hygiene. (Th. P.)

920. Explain the function of ideals in extending the results of specific training. Are such ideas commonly established by pupils themselves, or must the teacher deliberately form them for the pupil? (B. E.)

921. Are the effects of specific training ever carried over into other non-identical fields by means of acquired 'attitudes,' *e. g.*, an 'attitude' of fair-mindedness, or an 'attitude' of accuracy? How is such an attitude embodied, if present?

922. A man who had had training in the psychological laboratory stated that this work had developed in him a general attitude of caution

in drawing conclusions without bias. Is this probable? If so, does it indicate the formation of a "generalized habit" or of a conscious ideal? Is such a result an inevitable result of laboratory training? Might it be such with proper teaching?

923. "Which of these statements is the truer, and why? (1) "It has been well said that an educated man has a sharp ax in his hand and an uneducated man a dull one. I should say that the purpose of a college education is to sharpen the ax to its keenest edge." (2) "An educated man has a multitude of useful tools and resources and knowledge where to get more of the same kind. The purpose of a college education is to increase his stock and practise him in the use of each." (Th. P.)

O. Abnormal and Anomalous Psychoses

References

An—391-6.

K—xvii.

Ju—xiv.

T. P.—xiv.

(a) Sleep and dreams

924. State the probable psychological conditions of sleep. What portions of the nervous system are most affected by sleep? What least?

925. What are the chief psychological characteristics of sleep? Is consciousness altogether interrupted in deep sleep?

926. Describe experiments to determine the depth of sleep and state their results.

* 927. In what stages of sleep are we most likely to dream, and why?

* 928. Show the importance of sensory stimulation in the genesis of dreams.

* 929. Why are our dreams so predominately visual? Do you ever have auditory, gustatory, or olfactory dreams? Give instances of the translation into visual dreams of stimuli received through other sense-channels.

* 930. What is the psychological and neurological explanation of the grotesque and irrational nature of dreams?

* 931. Why are dreams so real and 'taken-for-granted' while they are in progress?

* 932. Why do dreams not ordinarily produce the active motor response, *e. g.*, walking, that would result from a similar waking consciousness?

* 933. What type of attention and what forms of association are exhibited in dreams?

* 934. Give illustrations of the rapidity with which dreams are forgotten.

* 935. Keep a careful record of your dreams for a week or more. (It is imperative to make rough notes at the moment of waking.) Tabulate them according to the sense-departments concerned; trace their sources, and examine the type of associative processes revealed.

936. Is there any warrant for the popular notion that dreams are often prophetic?

(b) *Hypnosis*

937. What are the essential characteristics of the hypnotic consciousness?

* 938. Give a brief account of the history of hypnotism from the time of Mesmer.

939. Show the relation of hypnosis to attention.

940. In what respects is hypnosis like, and in what respects unlike sleep?

* 941. Show the presence of both anesthetic and hyperesthetic tendencies in hypnosis.

* 942. What is the probable physiological basis of hypnosis?

943. Are all persons hypnotizable?

944. Describe methods of inducing hypnosis. What is the essential feature of all these methods?

* 945. What is meant by 'suggestion' in hypnosis? By 'rapport'?

* 946. What is 'auto-hypnosis'? Show that all hypnosis is really auto-hypnosis.

* 947. What stages of hypnosis are commonly distinguished? What is meant by 'catalepsy'? By 'cataplexy'? By 'somnambulism'?

* 948. What is 'post-hypnotic' or 'terminal' suggestion? How is it explained?

* 949. Why is the hypnotized person able to perform physical and mental feats that he could not perform under normal conditions?

950. Discuss the therapeutic value of hypnosis. Has it any value for moral training? What dangers may attend its use?

(c) *Insanity and feeble-mindedness*

951. Define insanity. In what respect is it fundamentally different from the dream or hypnotic disorganization of consciousness?

952. Show that insanity involves a dissociation and subsequent abnormal reorganization of psychophysical activities.

953. Show the operation of heredity and of stress in the genesis of insanity.

* 954. Distinguish between mania and melancholia. Show that these may be looked upon as exaggerations of normal tendencies.

* 955. What is 'dementia'? What is 'general paresis'?

* 956. What is the nature and cause of 'aphasia'? What is the distinction between sensory and motor aphasia?

957. What is arrested development? How does it differ from insanity? What factors may produce it, and in what forms is it manifested? (Cf. for detailed treatment, M. Barr, *Mental Defectives*, Philadelphia, 1904.)

958. What is the distinction, with regard to mental development, ultimate efficiency, and type of training required, between the idiot, the imbecile, and the backward child?

959. What is a 'moral imbecile'?

960. What are the most characteristic physical and mental signs of feeble-mindedness in young children?

961. What sort of school work can the average feeble-minded child accomplish?

(d) *Miscellaneous disturbances and peculiarities of mental life*

* 962. What is meant by 'secondary' self, or by 'dual' or 'alternating' personality? Describe typical cases. Show how these disturbances are but exaggerations of the normal 'splitting up' of the self.

* 963. Show the relation of automatic writing to the hypnotic consciousness.

* 964. Describe and explain the phenomena of 'trance.' What disputes are waged concerning the interpretation of these phenomena? How much credence is to be given to the alleged evidence for telepathic communication with departed spirits during trance states?

*965. "The *unconscious* has been made in recent years the great panacea for all psychological and philosophical difficulties." (An.) Illustrate.

* 966. Show why the use of such concepts as 'subliminal personality,' 'unconscious self,' etc., is unnecessary and misleading.

967. What are the general effects of narcotic and of stimulating drugs upon neural and psychic activity? What are the psychological and physiological effects of alcohol?

* 968. What is the nature and cause of the delirium of fever?

969. What is 'neurasthenia'? How caused in general? How treated?

970. What are meant by 'nerve signs'? Name the more important ones. (Cf. F. Warner, *The Study of Children*, N. Y., 1899.)

972. What is 'chorea'? How manifested? At what period of life? What are the common causes, and what the best remedy? Why should the choreic child be removed from school?

972. How does mal-nutrition affect mental development? How is it manifested physically?

973. What is the general effect of fatigue upon mental activity?

74. What is the probable physiological condition in fatigue?

975. Is fatigue 'general' or 'local' in nature? Does local fatigue produce general fatigue? Does mental fatigue cause bodily fatigue? Does bodily fatigue cause mental fatigue?

976. How does exhaustion or over-work differ from fatigue?

977. How does weariness differ from fatigue? Does disinclination to work signify inability to work?

978. What is the relation between quickness of fatigue and age? How does this effect school work?

979. State all the signs of fatigue that the teacher may observe or learn by inquiry. (K.)

**P. New York State Professional Examinations for College
Graduate Certificates***

(a) *Examination held September, 1906*

Answer any five of the following questions but no more, including at least one from each division.

Division I. 1. State the methods employed by the old psychology to ascertain and systematize psychic facts.

2. Name 10 recognized psychologists; mention some of their writings and state their general position in the field of psychology.

Division II. 3. Define consciousness, mind, sensation, feeling, threshold of consciousness, the subconscious.

4. Define apperception and show its pedagogic importance. Give the genesis and the different aspects of attention.

Division III. 5. State Professor James' doctrine of "the stream of thought."

6. Arrange a program of studies for children from three to sixteen that shall be in harmony with genetic psychology.

Division IV. 7. State Weber's law and give the results of its application to the different senses.

8. How may the memory be scientifically studied?

(b) *Examination held May, 1907*

Answer five of the following questions, including at least one from each group.

Group I. 1. Describe the method of physiologic psychology. State some of its conclusions as to consciousness, memory and association.

* As stated in the Introduction, these questions are appended because of their interest to teachers who are preparing for similar examinations. The compiler of this *Bulletin* has elsewhere (*Journal of Pedagogy*, xix., Sept.-Dec., 1907, 78-89) sought to show the obscurity and inappropriateness of many of the questions. The Regents' Questions in Psychology, 1895-1904, may be procured in pamphlet form of C. W. Bardeen, Syracuse, N. Y.

2. What is meant by reaction time? How is it studied?

Group II. 3. Give a psychologic definition of conscience. Show how conscience may grow under proper instruction.

4. Define visualization, imagination, volition, sensation.

Group III. 5. Distinguish between color ignorance, color weakness and color blindness. Describe some of the tests of the above states.

6. State Wundt's doctrine of psychophysical parallelism.

Group IV. 7. State some theory of the emotions that appears to account for all the facts.

8. Give the positive and the negative evidence for the doctrine of localization of cerebral functions.

(c) *Examination held August, 1907*

Answer any five of the following questions.

1. Name the different aspects of consciousness; distinguish the conscious from the subconscious activities.

2. Distinguish between illusion and delusion. Describe three illusions, three delusions.

3. What is meant by the psychology of the crowd? Give the chief characteristics of the mind of the crowd.

4. Describe methods of studying child psychology. Describe psychic characteristics of children and show the relation of child psychology to the problems of education.

5. Trace the psychology of habit. Estimate the moral values of habit.

6. State your methods of detecting abnormal tendencies in children. Estimate the force of heredity, environment and instruction in abnormal mental types.

7. Define volition and present its different aspects. Describe the element of volition in (a) apperception, (b) attention.

(d) *Examination held August, 1908*

Answer any five of the following questions.

1. Discuss the various types of imagination and their bearing on the teaching of specific subjects.

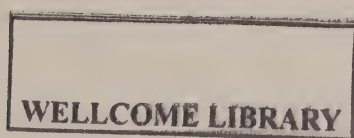
2. Trace the psychology of interest, showing its relation to attention, cognition, emotion and will.

3. Describe the relation of habit and intellectual power and habit and emotion, showing in what ways habit is a help and in what ways it is a hindrance.

4. Describe affection, or feeling as a mental element and compare it with sensation. Show the relation of feeling experiences to the life of the psychophysical organism. Make a classification of feelings.

5. State and illustrate the inductive methods for determining causal connection.

6. Trace (after Kirkpatrick) the development in childhood of spoken language through its different stages and show the influence of the different factors involved.



ERRATA

As circumstances have prevented the author from making an accurate revision of this *Bulletin* readers are asked to correct the chief typographical errors as indicated herewith:-

Page	Question		
14	34	For synopsis	read synopsis
17	—	" Contsitutinal	" Constitutional
23	123	" furnishes	" furnish
24	146	" Names	" Name
29	205	" lxx., Feb., Mo.,	" Mo., lxx., Feb.
30	220	" insruction	" instruction
38	295	" accomidation	" accommodation
41	343	" or	" of
43	359	" terms	" forms
44	372	" Compare	" Compare this movement
48	413	" frequently	" frequent
51	451	" hae	" have
53	485	" the the	" the
57	535	" be	" by
60	560	" of the of the	" of the
60	560	" environmet	" environment
61	583	" halluncination	" hallucination
61	587	" observotion	" observation
65	623	" 1993	" 1903
67	645	" bath	" the bath
71	669	" A(n).	" (An.)
71	677	" imagination	" imagination. (K.)
72	688	" equally good music-	" music equally well
74	—	" Conception	" K. Conception

